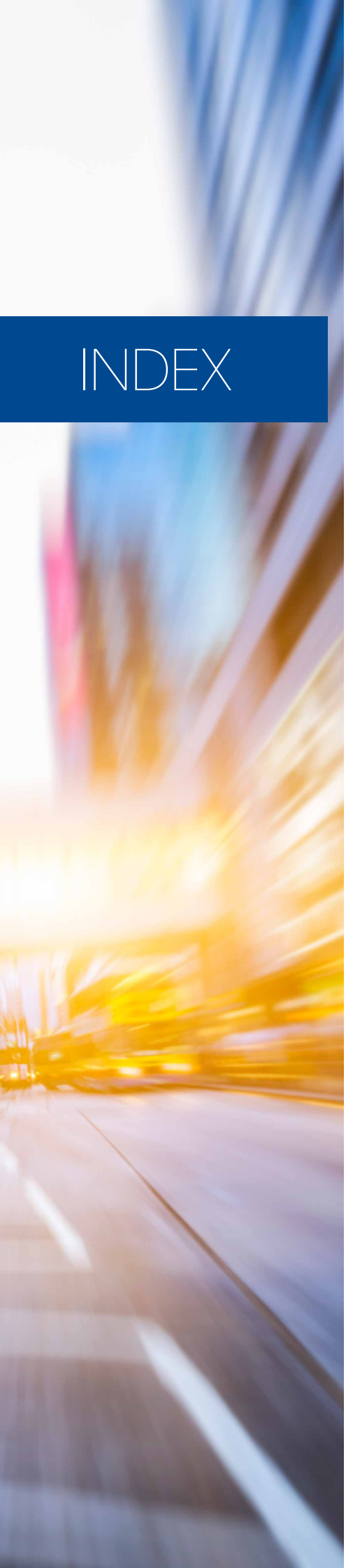
30 years crealog

TELECOM APPLICATION CATALOG



INDEX

CREALOG SERVICE DELIVERY PLATFORM

THE CREALOG SERVICE DELIVERY PLATFORM

Communication service providers (CSPs) are faced with tremendous changes taking place in their networks. Margins are shrinking, and global OTTs are constantly generating new threats, including alternative, free-of-charge communication and messaging applications.

CreaLog offers a solution to this challenge with our CreaLog Service Delivery Platform, "Made in EU" from start to finish and able to fit into any CSP network.

Cloud support, geo-redundancy, comprehensive cluster capabilities, and telco-grade availability are all guaranteed. And that's just the beginning. There are plenty more reasons to make CreaLog your new service delivery platform of choice:

- **Flexible Solutions**
  Our standard applications provide extensive out-of-the-box functionality, as well as templates and modules that enable you to manage all the crucial processes in your company, from network resources to customer interfaces. And it's all supported by our powerful underlying CreaLog Service Delivery Platform (SDP).
- **Customizable Solutions**
  All our solutions are extremely flexible and easily customizable, so it's easy to adjust your system according to your needs. Our Service Creation Environment (SCE) provides a convenient graphical environment to help you create any customization you might need.
- **Customer-Centric**
  We know it's a challenge: You need to consolidate multiple applications into a single platform, while simultaneously introducing new applications regularly to keep up with the rapid pace of technological change in the digital world. Our customer-centric and cost-efficient approach makes sure you can do just that.
- **Proven Performance**
  Over the last 30 years, we've completed projects in 30 different countries for our customers, including A1 Telekom Austria, Deutsche Telekom Group, Kyivstar, Monaco Telecom, Post Luxembourg, Sunrise, Swisscom, Unitel, and Vodafone.
- **Award-Winning Software**
  We've been short-listed and won 5G World, Glotel, and Stevie Awards, plus a variety of additional honors.
- **World-Class Support and Services**
  We offer a complete portfolio of professional services, training programs, and certification programs, as well as ongoing support programs to ensure you receive the best possible support, whenever you need us.
- **Agile Experts**
  We take great pride in being an agile organization – which means you benefit from quick our decision-making processes and have easy access to experts from each domain.
- **Support for All Networks**
  Our solutions are available for all networks with a clear migration strategy: from time-division multiplexing (TDM) and next-generation networks (NGN) to IP Multimedia Subsystems (IMS) and virtualized or cloud environments.
- **Standards Compliant**
  CreaLog is ISO 9001:2015 and ISO 14001:2015 certified.

THE CREALOG SERVICE DELIVERY PLATFORM

OUR SERVICE DELIVERY PLATFORM (SDP) ARCHITECTURE

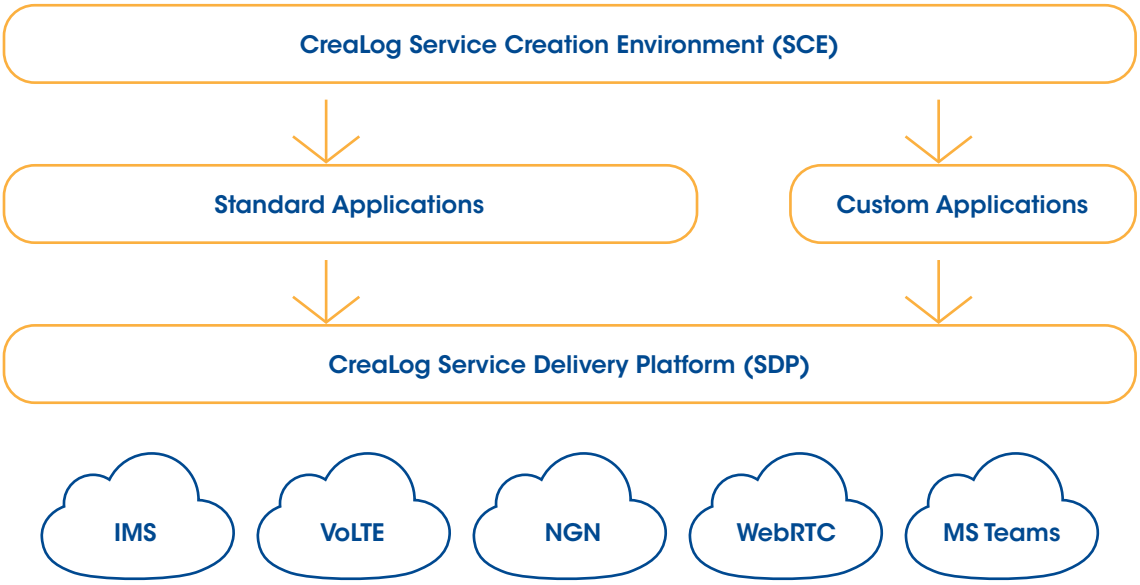
Our SDP is a comprehensive platform for all telecommunications applications including:

- Communication
- Signaling
- Media
- Messaging

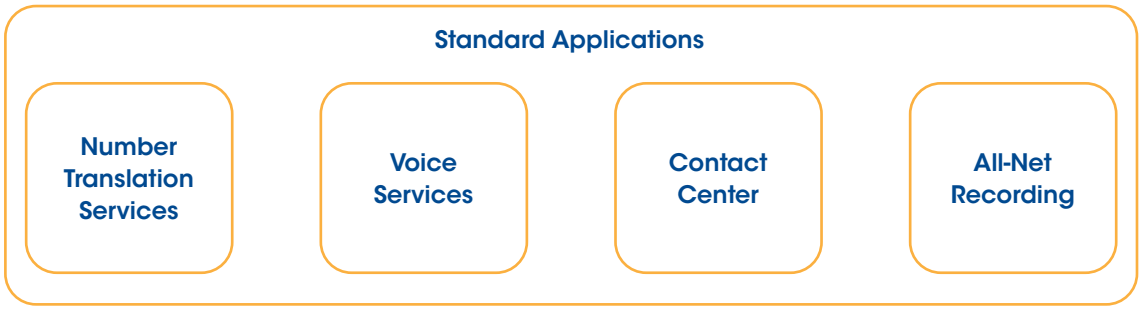
Our Service Delivery Platform (SDP) underlies all of our standard applications, and you can use it to build your own custom applications with our Service Creation Environment (SCE), as illustrated below:

This layered architecture is tailored to the specific needs of CSPs. The SDP access layer integrates seamlessly into any signaling network and can terminate all communication channels, including:

- Telephony
- MS Teams communication
- Interactive web sessions
- SMS
- WebRTC
- Video support



THE CREALOG SERVICE DELIVERY PLATFORM



CREALOG STANDARD APPLICATIONS

We offer a complete portfolio of tried-and-tested applications, some of which are illustrated above.

Number Translation Services (NTS)

Number translation services (NTS) are essential for CSPs. They cover many elements of telephony, from simple 1:1 routing for premium-rate or toll-free numbers to sophisticated voice VPN solutions.

Voice Services (Announcements, IVR and Speech-Enabled Services, Bots)

Voice services are implemented on our SDP using the Media Resource Function (MRF). In addition, voice services like announcements, IVR, or speech-enabled services can be combined with other CreaLog applications, such as the Cloud Contact Center or All-Net Recording. With these services, CSPs offer their customers a broad range of technologies, including:

- Natural language speech recognition
- Voice biometrics for fraud prevention
- Conversational AI and analytics
- Voice and chat bots
- and much more…

The omnichannel concept, which creates a systemic customer experience for CSP enterprise customers, has received a major boost in recent years through the use of intelligent algorithms. AI-supported dialogue systems that share AI algorithms and databases for voice and text services enable customers to interact seamlessly across communication channels 24/7.

Cloud Contact Center

Our Cloud Contact Center (CCC) opens up a world of opportunities for CSPs to approach their corporate customers with a compelling value proposition. Organizations of all sizes can now deploy contact center functionality without the need to invest in their own infrastructure.

All-Net Recording

The capacity to record communication of all kinds is increasingly in demand in many markets and already a widespread feature in contact centers. In addition, the EU's MiFID II Directive now requires financial institutions to have this capability, and the Directive is soon expected to expand to other industries, such as insurance and telemedicine.

Consequently, CSPs are faced with an ever-growing demand for the ability to record communication of all kinds (phone calls, SMS messages, etc.) – using any device on any network – and store it on the fly, along with its metadata, in a secure and encrypted manner.

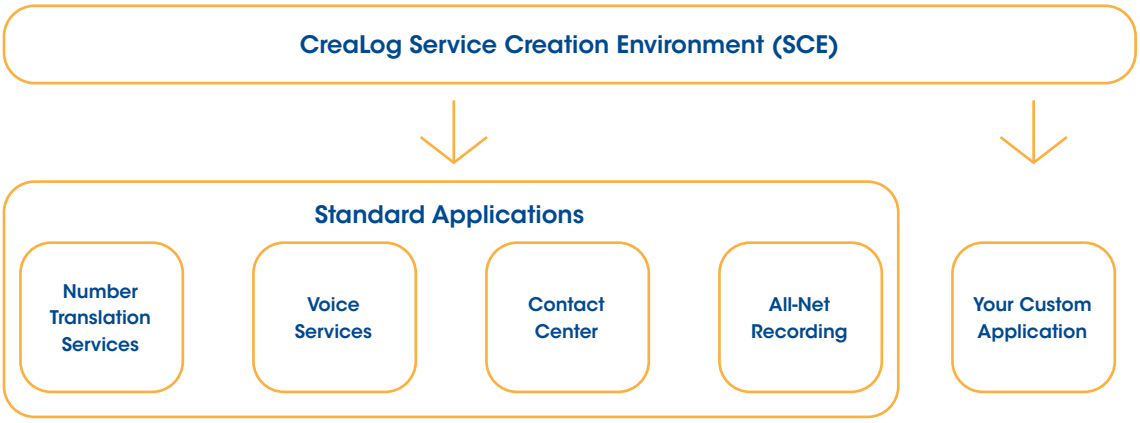
Network-based recording integrates with a CSP's core network and supports network-based virtual PBX solutions like BroadSoft via SIPREC (SIP-based media recording) or MS Teams.

THE CREALOG SERVICE DELIVERY PLATFORM

OUR SERVICE CREATION ENVIRONMENT (SCE)

Our SDP easily integrates into any CSP network. We offer a rich variety of off-the-shelf standard applications, but we also use a powerful Service Creation Environment (SCE) that fully supports you in creating new and enhanced applications, enabling you to react quickly to changes in the market. With a fully graphical user interface, our SCE allows for easy integration of databases and web services. Centralized configurations are supported, as are distributed deployments with a centralized but geo-redundant management back end.

The platform supports SIP and RTP standards (e.g., for IMS), as well as TDM protocols with INAP, CAP, and MAP. The application layer is independent from the access layer, so migration from traditional TDM networks to IMS and 5G is easy. Applications can be used in both worlds at the same time. The optional CreaLog Service Broker and CreaLog Gateways applications can set up and manage coexistent connectivity to multiple telco networks.



CREALOG SERVER FUNCTIONS

Within the platform, the tasks are distributed to modular instances, such as:

- Signaling servers
- Media servers
- Messaging servers
- Application servers
- Microsoft Teams integration

Signaling Servers

Signaling servers are at the core of IN- and SIP-based applications, such as number translation, charging, and routing. They are integrated with any BSS or OSS infrastructure using the Diameter protocol.

They provide connectivity to all Telecom protocols, including:

- SIP / SIP-I
- INAP
- CAP
- MAP

Media Servers

Media servers are essential for announcement services, IVR applications, media mixing, and conferencing. They manage resources based on voice or MS Teams and support announcements and simple input by keypad, as well as complex user interactions using sophisticated technologies, including conversational AI for voice and chat bots, voice biometrics for fraud prevention and speech analytics.

THE CREALOG SERVICE DELIVERY PLATFORM

Messaging Servers

Messaging servers handle all SMS and USSD traffic when deployed as SMSC or USSDC network elements and connect to any existing messaging center in the telco network. All standard protocols are supported, including:

- SMPP
- HTTP
- RCS
- UCP
- MAP

The open interface architecture of these protocols allows them to support integration of alternative messaging formats like web interaction or social media communication.

CreaLog Application Servers

CreaLog application servers offer a flexible platform for all applications. This includes off-the-shelf applications as well as new applications that can be created rapidly and reliably using our powerful CreaLog Service Creation Environment (SCE).

The SCE's graphical user interface is easy to learn and features a powerful scripting engine. With its modularity and object orientation, it meets the re-usability and teamwork requirements of large projects and teams.

The application server framework incorporates services for:

- Database integration and interaction
- Redundant data transmission
- Real-time synchronization
- Software distribution

The management suite allows for easy administration and configuration of custom workflows. It features an integrated report manager that supports complex time-based and event-based reporting.

Standard connectors for flexible back-end integration (databases, web services, messaging, charging, operations, etc.) enable users to create fast and reliable services.

Our application servers are fully multi-tenant and offer powerful rights management features that enable complex user hierarchies consisting of users, groups, rights, and profiles, empowering tenants to create their own organizational structures using the rights management features and to use the platform as their own. This enables CSPs to offer the platform as a true, full-featured cloud service.

Additional processes for data cleanup, alarm management, and monitoring enable telco-grade operation of this platform.

Microsoft Teams Integration

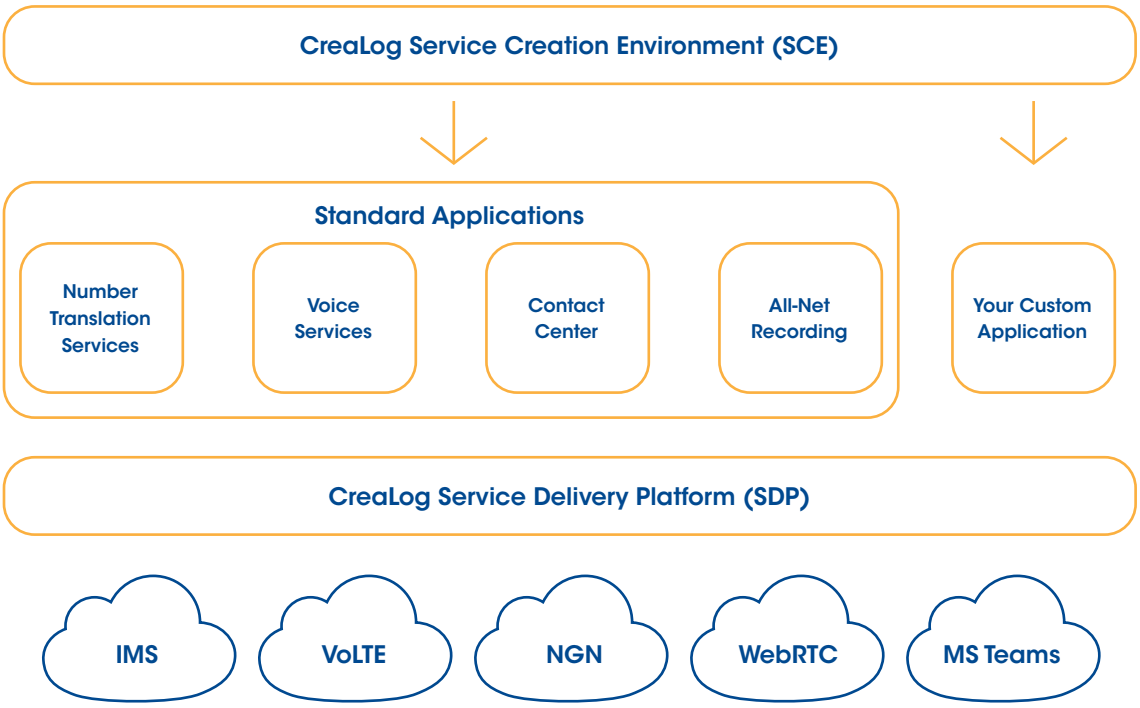
MS Teams integration for the CreaLog SDP platform is readily available and connects the popular MS Teams collaboration platform with our multichannel service platform, ensuring full integration with mobile and fixed communications, messaging, status management, provisioning systems, and automated onboarding.

Features like click-to-call, sending SMSs, a centralized address book, parallel ring, call pickup, and selectable CLI presentation serve to unify communication channels.

This creates new opportunities for CSPs to combine their MS Teams offer with their portfolio of mobile and fixed services, as well as with CreaLog's All-Net Recording and Contact Center solutions.

Here's the big picture:

THE CREALOG SERVICE DELIVERY PLATFORM



CREALOG REAL-TIME CHARGING

CreaLog Real-Time Charging supports any type of voice, SMS, data, and content traffic for mobile and landline networks. Flexible workflows allow for multi-play packages and service bundling and can be easily adapted using the platform's graphical SCE, enabling CSPs to respond quickly to the challenges of new and changing markets. Emergency and toll-free service numbers are supported.

CLOUD DEPLOYMENT

Network operators and other communications service providers are currently facing considerable challenges when migrating their services into the cloud, yet cloud services are essential to flexible state-of-the-art communications services.

And speedy migration is important: CSPs must provide their customers with new solutions and services as quickly as possible so that they can significantly reduce their own time-to-market when developing new business models.

This is customers' preferred way to generate new revenue while reducing their own CapEx/OpEx and lowering the cost of developing, integrating, and operating new applications.

CLOUD-READY SOLUTIONS

Telcos need a flexible, cloud-ready, and universal service platform. A browser-based environment to develop and manage future-proof, value-added telephony services is crucial as well. This is exactly what the CreaLog Service Delivery Platform offers.

FLEXIBLE CLOUD SUPPORT

The CreaLog Service Delivery Platform supports vSphere, KVM, and Hyper-V as hypervisors, which is typical for private or on-premise cloud deployments.

In addition, public cloud providers offer on-demand computing resources, storage, and networking. By outsourcing IT to the cloud, enterprises and service providers can reduce infrastructure and operational costs and introduce new commercial models, like pay-per-use. Cloud service providers offer superior reliability and high availability in a scalable and secure environment.

CLOUD ORCHESTRATION

A powerful orchestration framework is a crucial factor for success when managing large environments. OpenStack is a widely used open source cloud software and offers control of compute infrastructure, storage, and networking resources with a powerful orchestration and management interface.

Containerization platforms add another level of modularization for applications. CreaLog supports Linux with its microservice architecture for these environments, offering increased scalability and security alongside less compute resource demand.

CLOUD ENVIRONMENTS

VALUE PROPOSITION

Operators are facing tremendous changes, shrinking margins, and new threats from global OTTs.

Configurable and Flexible Solutions

CreaLog offers a complete portfolio of out-of-the-box functionalities, templates, and modules to manage all the crucial processes at your company.

Highly flexible, easily customizable solutions enable you to adjust your CreaLog solution to suit your company's needs.

On-premise or cloud deployment – the choice is yours.

Customer-Centric Approach

Our customer-centric and cost-efficient approach makes it easy to introduce new applications and consolidate multiple applications on one platform, enabling customers to master the challenges in today's digital world.

Cost-Efficient BSS/OSS Transformations

We take great pride in being an agile organization – which means you benefit from our quick decision-making processes and have easy access to experts from each domain.
Our solutions are available for all networks with a clear migration strategy toward IMS.

INTERNATIONALLY PROVEN PLATFORM

- References:
  A1 Telekom Austria, Deutsche Telekom, Kyivstar, Swisscom, UNITEL, Vodafone
- Installations in 30 countries
- Fully redundant and clustered architecture designed for 99.999% reliability
- Central or distributed deployment with optional geo-redundancy

INTEGRATED PLATFORM FOR ALL APPLICATIONS

- Signaling
- Voice and video telephony
- MS Teams / UCC
- SMS / USSD / RCS
- SIP/SIP-I signaling
- WebRTC

COMPREHENSIVE APPLICATION PORTFOLIO

- Intelligent Networks
- Cloud IVR
- Cloud Contact Center
- Call Recording
- Messaging
- Televote
- Message Broker

EASY ADMINISTRATION

- Browser-based
- Web services
- Multi-tenancy
- Open interfaces for charging, monitoring, and reporting

CENTRAL RESPONSIBILITY FOR PLATFORM AND PROFESSIONAL SERVICES

- Powerful service creation environment
- Full service portfolio for consulting, implementation, training, operation, and service
- Premium quality and "Made in EU"

CERTIFIED QUALITY

- ISO 9001 quality management
- ISO 14001 environmental management
- Numerous certifications and awards

ATTRACTIVE PRICING AND BUSINESS MODELS

- Buy
- Revenue share
- Lease / rental

PROFESSIONAL & SUPPORT SERVICES

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PROFESSIONAL SERVICES

Reliable Business Partner

We offer a comprehensive portfolio of professional services to ensure you reap maximum profitability from the platform and its applications. We are your business partner for planning, integration, launch, operation, and the ongoing evolution of your business services.

Installation and Commissioning

Our Analysis and Design Service helps you fully integrate new applications with existing networks and business processes. Working closely with your in-house experts and other suppliers, CreaLog senior architects perform an in-depth service and network integration analysis, covering all relevant use cases and interfaces.

Our Interface Configuration and Integration Service enables you to rapidly and reliably integrate our products into your telephony, data, BSS, and OSS network environments. Our senior engineers work in close contact with your in-house experts to design, specify, configure, and integrate our solution into your environment – from interface parameterization all the way through to final verification. We're with you every step of the way!

Our Application Implementation Service supports you in creating outstanding product offerings. Our experienced application engineers offer professional support for your service integration and validation. We also provide the experience and expertise you need to facilitate a secure migration of service data for all types of solutions – from planning and design to support for a live migration.

To ensure an efficient launch of your solution and professional integration of hardware and software into your operating environment, our experienced delivery team works closely with you. We support you from the initial analysis and design right up to the successful service launch. Our delivery teams offer professional verification and validation support based on many years of experience.

While the focus of this service is on supporting solution integration, it can be extended to include acceptance activities as well. Optionally, CreaLog can take on full responsibility for planning, specification, execution, and reporting. We offer qualified support with on-site presence and active system monitoring during your launch.

Sophisticated project management is key to the success of any project. All our teams are managed by a project manager with the skills and knowledge to effectively manage the installation and commissioning of mission critical systems. The project manager is responsible for overall planning and coordination and acts as your single point of contact throughout the project.

Training Services

The CreaLog Academy offers a full range of training programs. From introductory courses to advanced product specialist and certification programs, our programs help you build extensive in-house knowledge. All our courses are designed to ensure a high level of knowledge transfer.

Business Consultancy Services

To maximize your investment, CreaLog provides valuable knowledge and expertise to help you to build on the CreaLog-based service offerings and further leverage the advantages provided by our products.

Our Business Consultancy Service capitalizes on our extensive global experience in dealing with business opportunities and challenges for CSPs. We offer superior support to mobile and fixed-net operators around the world to help them identify new business opportunities and capture new revenue streams.

PROFESSIONAL & SUPPORT SERVICES

Support Services

To guarantee maximum business continuity, our Support Services offer you full access to our expertise during the operational life of your solution. The services are available as part of a range of different support programs, designed to fit the needs of your business.

	On-Site Preferred	On-Site Live
Free spare parts and software updates	✓	✓
24/7 on-call service with guaranteed response (90 min) and repair times (24 h)	✓	✓
24/7 teleservice, on-site troubleshooting, and 2nd level support	✓	✓
Continuous system monitoring, dialogue optimization, and process consultancy		✓

Our help desk provides a single point of contact for all service contract customers. Depending on your service level agreement, these services are available up to 24 hours a day, 7 days a week. Incidents that cannot be solved immediately are logged and escalated to our 2nd and 3rd level experts.

PROFESSIONAL SERVICES

On-Site Plus Preferred

On-Site Plus Preferred is designed for CSPs who want to get the most out of their solution. In addition to all the services provided by On-Site Plus, you'll also get guaranteed response and repair times and free software updates.

On-Site Plus Live

Beyond On-Site Plus Preferred, On-Site Plus Live includes continuous monitoring, regular optimization and process consultancy, and a complete system audit. This service is intended to proactively uncover potential system issues before they impact the overall system and business performance. Specific terms can be agreed upon on an individual basis to suit your specific needs.

ADDITIONAL SERVICES

On-Site Support

This service gives you a dedicated CreaLog engineer working as a member of your implementation or operations team.

Stand-By Assistance

Stand-By Assistance is designed for critical operations. When changes are made to your operational environment that may affect the CreaLog system, such as switch-overs or hardware/network changes, we form a dedicated team that is ready on stand-by, should their support be needed.

System Audit Service

Our System Audit Service checks a CSP's internal processes, focusing on connections between different organizational departments. This service helps reveal process weaknesses and facilitates the analysis of risk factors.

TELCO ENTERPRISE SERVICES

TELCO ENTERPRISE SERVICES

NG-IN / VOICE VPN / SIP APPLICATION SERVER

NG-IN / NUMBER TRANSLATION

Compelling Benefits for Operators and Their Customers

Most organizations using non-geographic numbers use them brilliantly in their customer contact strategies, as they offer benefits far beyond those of run-of-the-mill telephone numbers. Telephone operators seeking to stand out from the crowd of voice service providers can profit from the top value offered by CreaLog's advanced Number Translation Service. Its compelling benefits include:

- **Future-Proof Technology**
  CreaLog NTS is an SIP-based solution that ensures interoperability with present-day equipment of any kind while guaranteeing a smooth transition to IMS networks if and when the need arises.
- **Independent of Network and Device**
  Handles traffic from and to both IP and circuit-switched networks equally well. End destinations can be circuit-switched or IP based, fixed or mobile, PBX, ACD, and more.
- **High-Capacity**
  Telco-grade platform with overload protection and options to limit traffic per customer and destination.
- **Highly-Customizable**
  Easily adaptable to a broad range of customer requirements and scales to fit all subscriber market segments.
- **Legal Compliance Guaranteed**
  Designed to accommodate any and all legal requirements for premium-rate call services.
- **Allows Customer Self-Management**
  The operator determines the level of control each customer can exert via a user-friendly GUI, empowering corporate users to do their own administration and provisioning.
- **Efficient Routing Made Easy**
  Routing configurations can be adjusted quickly and easily. Customers can control routing options to align with their business processes and databases.
- **Flexible Operating Options**
  Operation can be stand-alone or combined with NG-IN Centrex and hosted ACD and IVR functionality to offer customers a 100% hosted cloud solution.
- **Statistics for Customers**
  Detailed statistics are available to provide customers with information on the use of their services.

Benefit From Our Long-Term Expertise in Large Networks of Tier 1 CSP

Development, project management, and professional support services are all delivered directly by the manufacturer, CreaLog. All solution design and development work is performed domestically and customized for you: Made in EU.

NEEDS MET

- Multi-tenant IN platform with a rich user interface
- From simple routing to complex, graphically created call flows
- IVR and contact center integration for powerful cloud services
- Services with keypad input and speech recognition

BENEFITS

- Flexible platform for service providers, resellers, and distributors
- Platform for all TDM, NGN, and IMS networks including migration scenarios
- Assisting IP with enhanced IVR functions

VOICE VPN

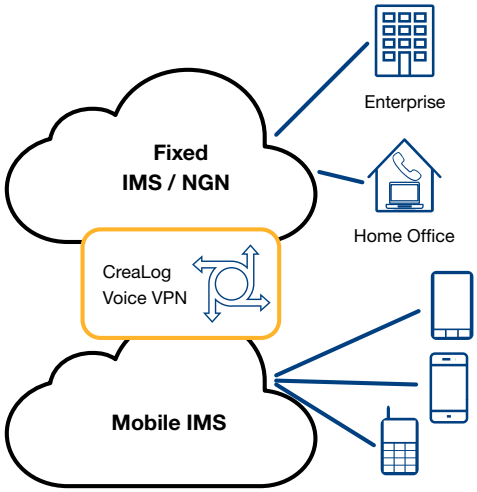
Large corporate customers often require solutions for consolidating the regional phone numbers of their locations and integrating a multitude of service numbers into one private numbering plan. The solution is a virtual private voice network (voice VPN) that is part of the telco infrastructure and managed individually by the corporate customer.

Employees at all locations benefit from using short phone numbers for internal calls, which are defined in a private numbering plan. For outgoing calls, users decide for themselves which number will be displayed. Remote workers can be reached from within the VPN when they temporarily join the VPN with their current fixed or mobile phone number.

COMMUNICATIONS PLATFORM AND UNIFIED WORKFLOW SYSTEM

Voice VPN is a multi-tenant service running on the CreaLog Service Manager Platform. It integrates the essential features of number screening, number translation, and call routing of incoming and outgoing calls. The Service Manager enables CSPs to offer Voice VPN as a service out of their cloud for their corporate customers.

Voice VPN helps corporate customers benefit from individual cost plans for internal and external connections, while the service provider benefits from increased phone traffic.



Voice VPN
Dialing via Short Codes and Private Numbering Plan

BENEFITS FOR PROVIDERS

- Increased chargeable traffic due to reduced missed call attempts
- Comprehensive customization options
- Adaptable call patterns support service evolution
- Highly scalable configuration
- Standard interfaces for integration
- IMS/VoLTE integration
- Professional 24/7 support and maintenance

BENEFITS FOR TELCO CUSTOMERS

- Private numbering plan for multiple locations and mobile workforces
- Self-service via phone and web
- Cost control
- Usage statistics
- Convergent telephony solution with transparent coverage for fixed, mobile, and IP phones

IVR / MRF

The CreaLog Network IVR and MRF is a powerful multimedia server within our IMS architecture. With it, service providers can quickly deploy multimedia services across fixed and mobile networks.

NETWORK IVR

Many IVR functionalities can be used on IVRs in a telco network, offering a unified service environment and many service options, as described in the following examples.

Network-Based On-Hold Queue

CSPs can offer corporate customers and contact centers network-based on-hold queues with the option to upload individual corporate on-hold music or announcements.

Prepaid Card Top-Up

SIM card balances can be topped up using a scratch card or cash-code PIN via keypad or by voice.

MRF ANNOUNCEMENTS

Within an IN network, the media server and special resource function (SRF) play announcements, record user input, and collect DTMF entries from the caller. Our media servers are part of the IMS architecture for:

- Ring-back tones
- Tones to alert users, e.g., when their mobile plan allowance is exceeded
- Tariff announcements, opening hours, and network-related information
- Collecting DTMF input from users

Announcements can be set up two ways: either prompts (sound files) can be uploaded, or text-to-speech resources can generate speech output from typed text.

The CreaLog media servers and SRF can collect user input via DTMF or speech recognition and support all relevant standards, including SIP, MSML, and HD Voice.

NEEDS MET

- Efficient expansion and delivery of multiple services
- Platform interacts with several services simultaneously
- Delivery of high-availability, carrier-grade services
- Support for NETANN, MSCML, MSML, AMSML, VXML, and other major interfaces

BENEFITS

- Deploys multimedia services across fixed and mobile networks with reduced cost and time to market
- Leverages IMS infrastructure with interfaces for IMS and fixed NGN
- Allows any access method: 2G GSM, 3G UMTS, 4G, 5G
- Supports a wide variety of audio and video codecs

IVR / MRF

ENTERPRISE IVR FOR YOUR CORPORATE CUSTOMERS

Classic IVR and Voice Bots

Intelligent interactive voice response (IVR) is at the core of intelligent voice self-service and voice bots. With modern speech recognition, callers can freely voice their purpose and are directly put through to the desired self-service or a competent service agent. In addition, sophisticated speech recognition technology can identify the customer, facilitating safe authentication.

Advantages

Self-service should be part of any standard service offering, as fully or partially automated services significantly reduce costs and make new services possible. Network-based Enterprise IVR services run 24/7, are always kind and patient – even when performing tedious standard jobs – and don't ask for vacation.

Using the CreaLog network-based Enterprise IVR, operators can offer their customers voice portal technology featuring sophisticated speech recognition, text-to-speech, and voice biometrics technology for additional security.

What's more, there's no need for these customers to invest in experts to implement the technology.

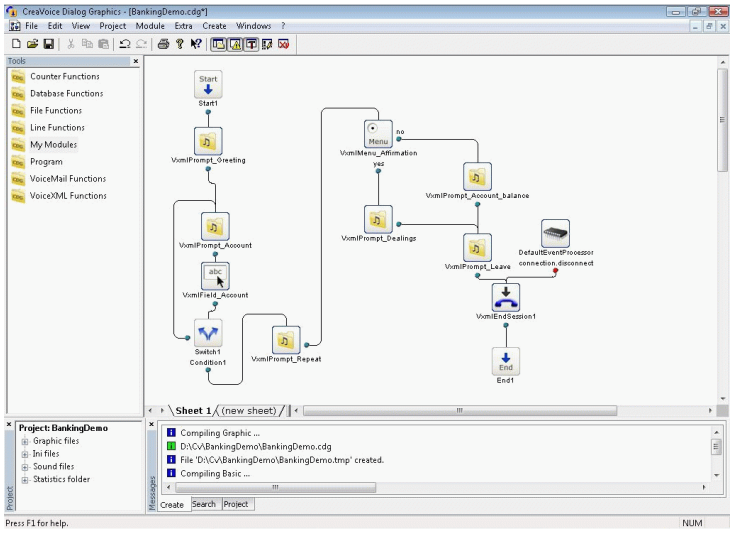
With over 50 languages and dialects to choose from, most customers can communicate via speech recognition using their native language.

Conversational AI Service Creation Environment

The CreaLog Service Designer enables operators to create safe service configurations and monitor complex services. The multi-tenant browser environment is easy to use, so customers can develop feature-rich dialogues and routing for themselves.

CreaLog Professional Services

To deliver the maximum benefit to you, CreaLog offers extensive training in the creation of conversational AI solutions. We teach you sophisticated and ergonomic voice user interface (VUI) design and give practical advice regarding sound, persona, and grammar design. During the test and optimization phase, our team will help you get the most out of your solution.



CreaLog's network-based Enterprise IVR features many predefined objects, facilitating easy implementation and integration with web services, databases, email, file transfer, and much more.

CONTACT CENTER

A CONTACT CENTER FOR YOUR CORPORATE CUSTOMERS

The CreaLog Contact Center solution offers you a proven, professional solution – at an attractive price that saves you money. It opens up great opportunities for communication service providers to approach their corporate customers with a compelling value proposition and offers excellent scaling flexibility for customers.

Potential users range from small businesses in need of a flexible automatic call distribution (ACD) system to enterprise organizations looking to implement and operate a feature-rich contact center to serve their customers anytime, anywhere.

Our perfect lean alternative to other overly complex solutions offers only functions that you want to make available to your corporate customers. It combines high flexibility and scalability and can be easily adapted to the requirements of your company and your customers.

Deployment

Our Contact Center solution can be deployed either on dedicated hardware or on the network operator‘s existing virtualization/cloud platforms. Whichever choice network operators opt for, all of the Contact Center solution functions are always available in their latest releases. CreaLog’s multi-channel Contact Center thus provides network operators with an answer to their corporate customers’ needs.

ADDITIONAL FEATURES

Email Module

When integrating email into the Contact Center, we use the same distribution and processing requirements as for phone calls. Using IMAP, messages are retrieved from business customers’ email servers at definable intervals and routed according to various criteria to skill groups.

IVR / Bot Module

Corporate customers of network operators may start with a contact center that only offers telephone services. But soon, they may need to expand the product to include an integrated and advanced interactive voice response (IVR) system for call steering, caller identification, and customer self-service for rapid first-call resolution.

Call Recording Module

This module enables recording for documentation and quality management, as well as speech analytics for word-spotting, data mining, and transcription.

NEEDS MET

- Slim solution with attractive use model that fits your budget
- Automated cross-media distribution, skill-based contact routing
- Universal, graphic workflow engine for process control and automation
- Easy back-end integration via interfaces such as VoiceXML, CSTA, SOAP/XML, and RESTful
- Lean and easy administration

ADDITIONAL PRODUCT OPTIONS

- Email
- IVR/VoiceBot: a fully integrated high-performance voice portal (IVR) featuring speech recognition and text-to-speech
- Call recording
- Transcription / speech analytics
- Customization to suit your needs

RECORDING & TRANSCRIPTION

RECORDING

CreaLog All-Net Recording records calls originating or terminating in mobile or fixed networks, stores them in a secure and encrypted manner, and provides a player for recorded files. There are also options to store and manage text messages and record calls made on third-party software.

The recording platform encrypts calls as they are being recorded, along with their metadata, using the public/private key principle. The associated private key is in sole possession of the customer – a broker or trader, for instance. On site, only authorized persons can access and decrypt their fellow workers' data. Neither the telecommunications provider nor CreaLog itself can decrypt this data. If decryption is needed, it follows the four-eyes principle in every case — so data privacy is observed to the highest degree.

Due to security concerns or policies, some customers (e.g., banks or government offices) may require call recording data to only be stored locally. CreaLog delivers an on-premise deployment that perfectly suits the needs of these customers.

Non-recording lists can be set up to determine which staff members' calls should not be recorded, such as employee representatives, medical officers, or company counselors.

RECORDING

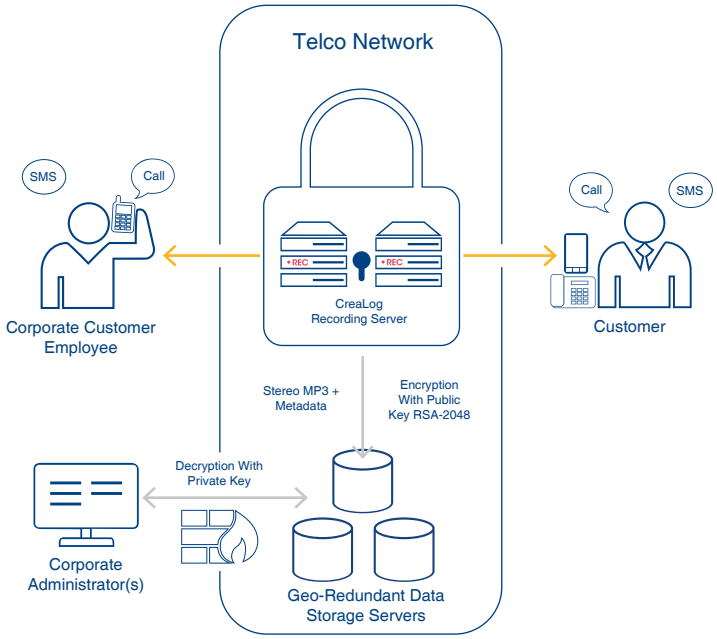
COMPLIANCE RECORDING

Around the world, the obligation of financial institutions to record the phone calls and text messages (such as SMSs, emails, etc.) of their advisory staff involved in finance and trading is being extended to include mobile networks.

Network operators can offer the technical means for the banking industry to comply with their legal obligation to record mobile phone calls, SMSs, and email messages, opening up an opportunity for them to implement a completely new range of services – and profit financially.

The CreaLog solution fulfills all the technical and legal requirements of MiFID II. The European Financial Market Directive states that all telephone conversations must be recorded and archived.

All relevant call information (metadata), including call date and duration, subscriber numbers, and more, must be stored.



NEEDS MET

- Helps customers to meet regulatory demands
- Generates new revenue opportunities
- Seamless recording of all incoming and outgoing calls, SMSs, and metadata, such as date, time, and subscriber number, all integrated into telco network and processes
- Secure, long-term storage
- Strong public/private key encryption on the fly
- Keyword search via speech analytics

BENEFITS

- Secure archive, easy search and playback
- Undisturbed user experience – on any device
- End users do not require training
- Guaranteed immutability of data
- Easy service roll-out within companies

RECORDING

ENTERPRISE RECORDING

Enterprise Communication Recording (ECR) is a network-based, multi-tenant solution. Highly flexible with a modular design, it meets the needs of different target groups within a cloud application. The main benefits are:

Documentation

- Preservation of purchase evidence
- Traceability of communication
- Documentation of communication

Quality assurance

- Screening and analysis of employees for supervisors
- Compliance with internal/external guidelines
- Fraud detection

In addition to recording mobile and landline voice calls, the ECR solution enables recording of SMS communication. All communication channels are forwarded via the corresponding protocols and interfaces of the telco network elements to the CreaLog Communication Channel Unifier Media Server.

Here, the decision is made whether a call is to be recorded, whether the deny-list function is activated, and which message is to be played (e.g., “this call will be recorded”). The communication is then encrypted and stored. All records can be quickly and effectively searched in a browser interface.

So that recordings can be used flexibly, they can be forwarded by email to the subscriber’s account or to conversation partners, including an optional transcript.

Quality assurance, compliance with relevant policies, and fraud detection are guaranteed via real-time or offline analysis capabilities. In the case of recordings of employees for quality assurance, the system ensures that only authorized managers have access.

All law-based recording requirements are fulfilled (such as approval to record via opt-in, required encryption technologies, and the right of employees and customers to have a recording deleted).

Several landline and mobile phone numbers as well as email addresses can be assigned to a single ECR subscriber.

MICROSOFT TEAMS RECORDING

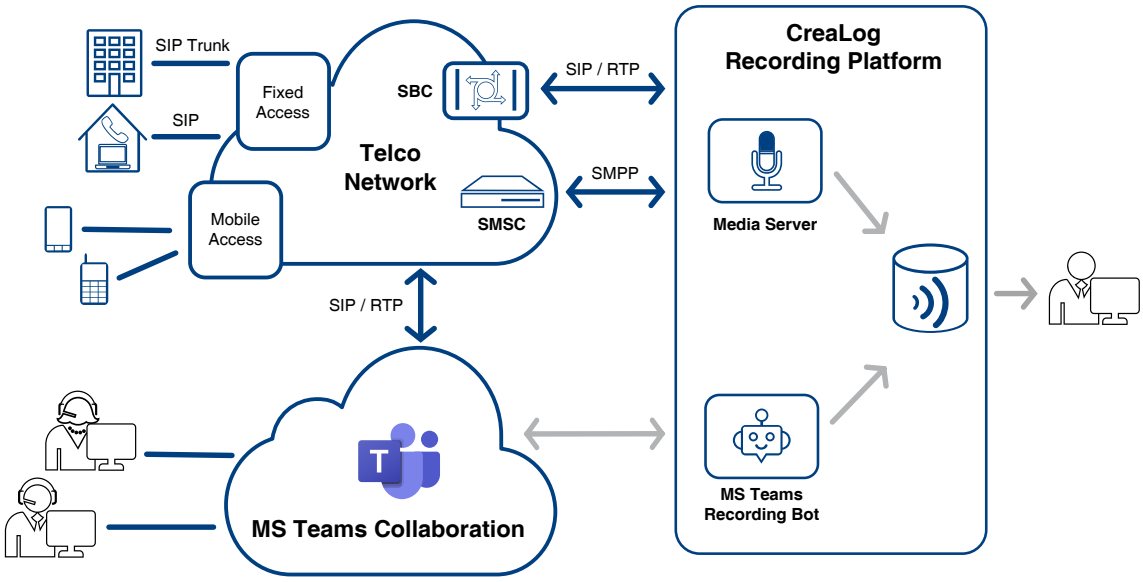
STAY COMPLIANT

With MS Teams Recording for financial institutions, contact centers, and other businesses, you remain compliant across all Microsoft Teams collaboration modes.

It's never been easier to fulfill legal requirements to document calls and archive recordings alongside their respective call details. CreaLog offers a legally (e.g., MiFID II) compliant recording and analytics solution for all your MS Teams communications.

Your administrators decide which users should be subject to recording and configure the recording policies. The solution then records and captures the selected interactions of MS Teams-based communications.

Combined with the generic CreaLog Call Recording, we record multi-channel communication and manage the data in a single solution.



BENEFITS

- Full capture, storage, analysis, and monitoring of all-net communication recordings for MS Teams calls, mobile and fixed calls, incl. SMS
- Recording of MS Teams multimedia content
- On-premise or network-based storage
- Unified provisioning and support for processes and systems
- Consolidated view of recordings on all channels
- Unified private/public key management

AI-BASED ANALYTICS

RECORD, TRANSCRIBE AND ANALYZE CONTENT

Call transcription involves recording a call, converting it to text, and storing it as a text file.

Combined with methodical call analysis, call transcription provides customer service management with important findings on issues like customer satisfaction and service quality.

Once converted to text, a telephone conversation is easy to analyze. Operators can thus search for issues more easily.

ANALYZING DIALOGUE STRUCTURE

Apart from a call's actual content, the dialogue's structure also provides important insights. For example, CreaLog Speech Analytics helps determine how speech and silence are distributed during a call. Are there conversation lulls for any length of time? Does one dialogue partner interrupt the other? Is there double-talk in the dialogue? Answers to these questions also provide relevant information for customer service quality management in call centers, reveal room for improvement in process flows, and uncover possible education or training needs of individual employees.

REAL-TIME VS. DEFERRED ANALYSIS

CreaLog Speech Analytics enables analysis of ongoing calls in near real-time. Alternatively, call recordings can first be processed. CreaLog Speech Analytics will deliver the best results when the call parties' utterances can be analyzed independently from each other (stereo). The quality of the analysis results might be impaired if the analysis is based on a composite signal (mono).

In rare cases where even the system's advanced voice recognition leaves a word or sentence transcribed incomprehensibly, the associated audio file segment can be played back at the click of a mouse.

Deferred analysis allows for repeated analyses based on new relevant search terms.

PRIVACY GUIDELINE COMPLIANCE

When recording and analyzing phone calls, the privacy of the calling party's data must be ensured at all times. CreaLog allows for this by implementing all the technical and organizational measures for commissioned data processing that are required by the EU General Data Protection Regulation (GDPR) in effect since May 2018. This includes, for instance, our data security officer evaluating our existing data processing procedures by order.

NG 112 EMERGENCY SERVICES

APPLICATIONS FOR CRITICAL EMERGENCY SERVICES

The foundation of today's emergency call infrastructure was established over 20 years ago with fixed networks in mind. The main goal was to reliably connect a caller from a stationary telephone to a Public Safety Answering Point (PSAP) and provide detailed location information from a dedicated database to the emergency response staff.

With the advent of mobile networks, the challenge of providing location information became more complex and was consequently addressed using triangulated data from the network infrastructure of the mobile service provider.

Technology evolved, and new possibilities were introduced with the evolution of telco networks toward IMS with IP protocol-based signaling and VOIP. Today, smartphones offer very precise GPS location information. In addition, every new car must now have built-in IN eCall capabilities to call for help in case of an accident.

The new European NG 112 standard has now been established to provide a transnational framework embracing the technical capabilities of all IP networks, smartphones, and devices, as a well as common communication methods.

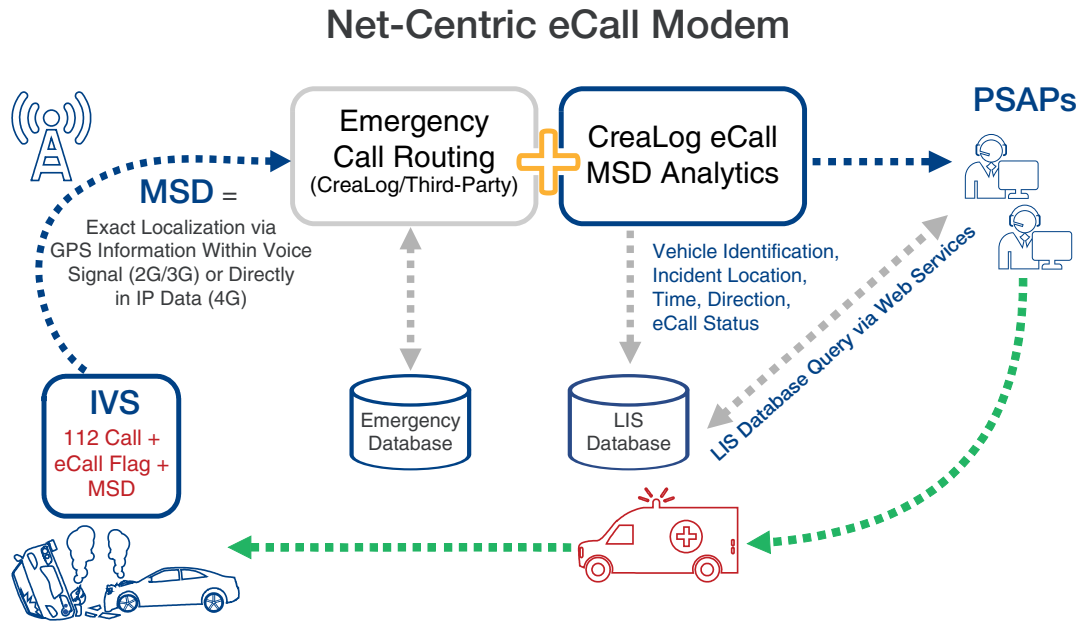
BUILDING BLOCKS

The NG 112 standard initiative offers country-wide, unique and centralized specifications to implement state-of-the-art next-generation 112 calling services from within communication networks.

NET-CENTRIC ECALL MODEM

Traditionally, an eCall is activated automatically (or manually) by a vehicle's built-in in-vehicle system (IVS) as soon as sensors within the vehicle detect a serious accident. The transmitted information includes not only caller location data, but also additional data like car model, driving direction, and more, which can be received and decoded by an eCall modem from within the PSAP.

The Net-Centric eCall Recognizer by CreaLog now takes existing country-specific emergency call routing systems a step further and offers a net-centric eCall modem with advanced eCall handling and routing features, which makes the need for a local eCall modem at every PSAP obsolete.



MSD = Minimum Set of Data, LIS = Location Information Service, IVS = In-Vehicle System, PSAP = Public Safety Answering Point

EMERGENCY SERVICES

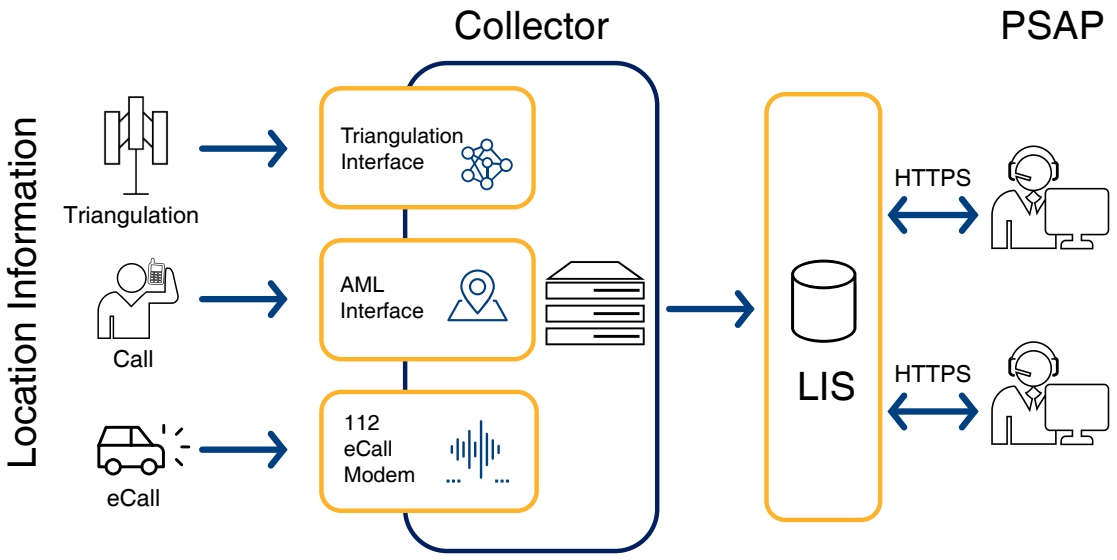
CENTRALIZED LIS SERVER

This new scenario accepts manual and automated eCalls alike and stores the minimum set of data (MSD) at the country-wide Location Information Service (LIS). Subsequently, the emergency call itself is routed directly to the PSAP.

The LIS overcomes the historic limits of location data only being transmitted via call signaling. It is a central server within a telco network that unifies geolocation data from various sources, like eCall 112, Advanced Mobile Location (AML), and the fixed network location database. It uses the PIDF-LO protocol and supports HTTP-Enabled Location Delivery (HELD) to provide geolocation details.

AML is an integral feature on iOS and Android smartphones. If a user starts an emergency call, it automatically sends the location data via SMS or HTTPS, providing either GPS or WiFi information.

As the location information is the crucial element for emergency calls, we enable PSAPs to retrieve location information and all other information concerning the call from the Location Information Service (LIS) via web services.



EMERGENCY SERVICES

NET-CENTRIC CALL RECORDING

Complete emergency call communication can be recorded and securely encrypted by a net-centric call recording solution and stored with a particular PSAP without the need for a separate voice recorder in each location.

The CreaLog Net-Centric Recorder interacts with the LIS server, which supplies the corresponding geolocation information, as well as SMS messages and additional metadata.

IMPROVED EMERGENCY CALL ROUTING

CreaLog's Emergency Call Routing supports CSPs in meeting the regulatory requirements for emergency calls specified by ETSI and ITU.

Integrating flexible Emergency Call Routing directly into a CSP's voice and IMS networks has many advantages for CSPs and emergency call organizations alike.

Maximum availability and improved accessibility are the main goals of the system. For any incoming emergency call, first, the technical and organizational availability of the nearest responsible PSAP has to be verified and calls routed without loss of information.

Predefined criteria take both predictable and unpredictable events into account to prevent network congestion. If a PSAP is unavailable or overtaxed, the call will be dynamically rerouted to one or more alternate PSAPs.

Greeting functions can be used to play announcements and proactively inform callers about already known major incidents. Standard greetings reduce the number of unintentional calls.

ADVANTAGES FOR EMERGENCY ORGANIZATIONS

CreaLog's Net-Centric eCall 112 Modem offers centralized eCall handling in the CSP network infrastructure. Compared to a decentralized model with eCall modems at each PSAP, this reduces costs considerably.

The flexible routing options offered by our improved emergency call routing ensure fast call response times and prevent lost calls due to unavailability or PSAP overload.

ADVANTAGES FOR NETWORK OPERATORS

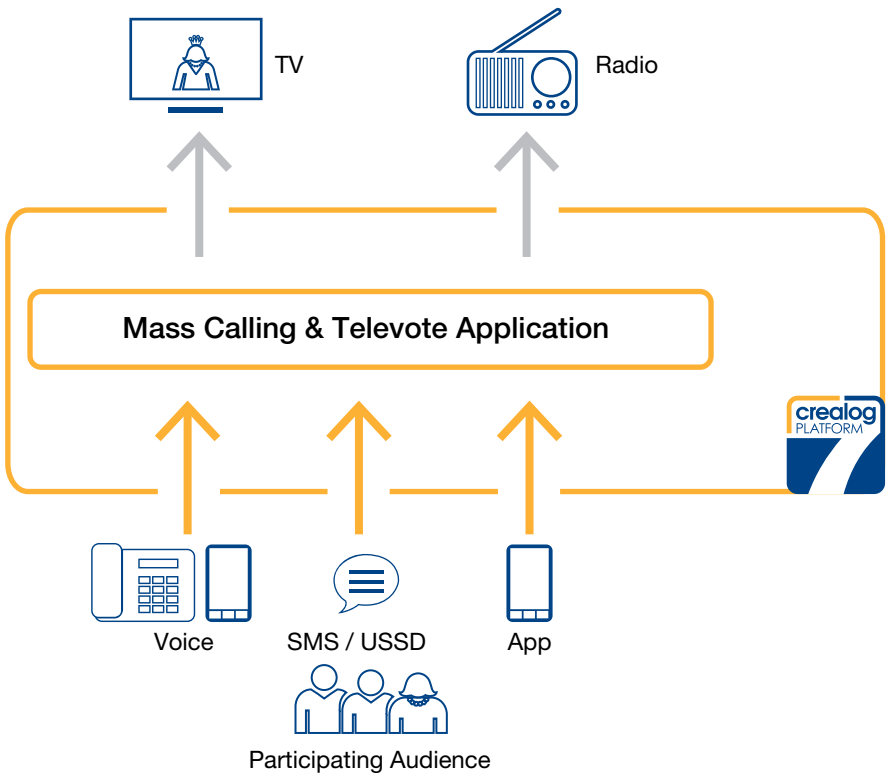
The routing of eCalls and 112 emergency calls is converted from a necessity into a billable value-added service and improves the reputation of the CSP as a reliable partner for any communication solution.

TELCO VALUE-ADDED SERVICES

MASS CALLING & TELEVOTE

Mass calling, televote, call-in TV, and radio shows create thousands of lucky winners, millions of enthusiastic viewers and listeners, and happy broadcasters alike. Attractive shows generate significant revenue streams for the operator, media companies, and service providers by means of premium-rate calls or text messages.

The technical execution of these shows relies on the advanced handling capabilities and data processing functionality needed to deal with the high volume of incoming votes via call, SMS, or apps and to process these votes in real time. The CreaLog Service Delivery Platform and Televote application take care of both aspects, offering an easy to manage all-in-one solution combining state-of-the-art hardware and software components.



NEEDS MET

- Creates additional revenue through TV and radio voting
- Vote for artists, super talents, and models
- Enables call-in shows for quizzes and contests
- Attracts broadcasters and TV production partners
- Processes millions of participants during a show

BENEFITS

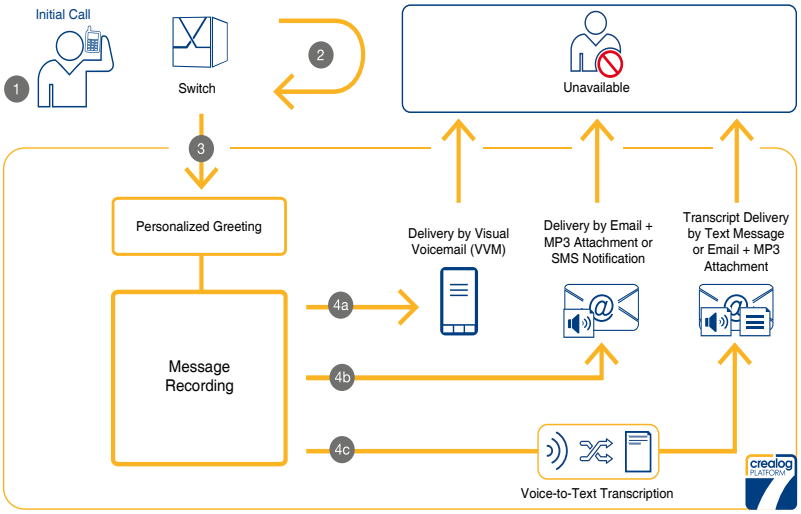
- Integrates all voting channels: voice, SMS, USSD, app, and web
- Real-time reporting and drawing of quiz and contest winners
- Multilingual speech recognition for all channels
- Open interface for TV screen engines
- Multimedia support for music and announcements

VOICEMAIL

NEXT-GENERATION VOICEMAIL WITH SIMPLIFIED INFRASTRUCTURE AND REDUCED TCO

Voicemail solutions are a well-known commodity for operators. Traditional storage of recorded voicemail files – sometimes for long periods – requires additional resources, putting a strain on the total cost of ownership (TCO) of such a solution.
For a voicemail solution with a significantly reduced TCO, CreaLog now offers state-of-the-art voicemail features in combination with the newest technologies in speech recognition and voice-to-text.

Voicemail no longer has to be stored by the telco, nor tediously retrieved and deleted by the customer. We offer an easy, simplified interface while leveraging existing infrastructure like email for voicemail delivery.
Our new Voicemail solution offers fast and easy message delivery by means of visual voicemail, email messages with audio attachments, or even transcribed voicemail texts.
Given that the customer has easy access to all the necessary information, storing voicemail with the telco becomes obsolete.



NEEDS MET

- Simplified user experience
- Seamless integration with existing communication infrastructure and handset features
- Significant reduction of operational effort (and cost) for network operators
- Carrier-grade service availability

BENEFITS

- Easy-to-use, seamless receipt of messages and notifications via VVM, email, SMS
- Leverages state-of-the-art speech technologies, such as enhanced speech recognition and voicemail-to-text (incl. transcription)
- Simplified infrastructure and reduced TCO
- Network-based voicemail storage converted from a high-cost item into an optional up-selling feature (message backup)

HEALTH SERVICES

INFANT MATERNAL MORTALITY PREVENTION

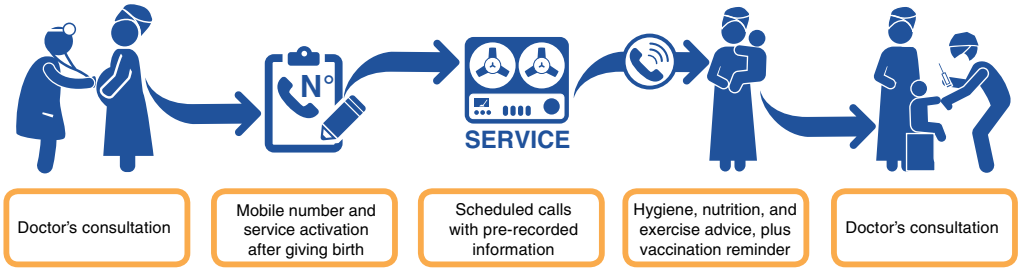
The Infant Maternal Mortality Prevention Reminder, as implemented at the Angolan mobile provider Unitel, is helping to lower infant and maternal mortality by an estimated 20% in pilot regions of Angola.

To give Angolan newborns and their mothers a chance at a better, healthier life, mothers of newborns needed to receive vital information by mobile phone. Due to the high illiteracy rate in Angola (30%), text messages were not an option for the service.

A voice service was designed that uses dynamic voice messages based on the child's developmental stage at a given point of time and the reaction of the mother. The messages contain important information for the mother and her newborn, ranging from hygiene tips and vaccination alerts to reminders to keep the next medical check-up appointment.

As soon as the mother sees a doctor after giving birth, she is registered with the service. From then on, the mother receives two calls per week for the next 52 weeks with important information relevant to her current situation.

The voice messages are read out in Portuguese and Umbundu, the most widely spoken language in Angola. This service offers Angolan mothers a chance to receive nearly the same important recommendations and tips that a midwife would pass on to them, regardless of their location.



A SERVICE BY UNITEL, PEOPLE IN NEED, AND CREALOG

FURTHER APPLICATION EXAMPLES

- HIV/AIDS awareness campaigns
- Information about local medical services/doctors
- General information about medications and treatments
- Information about risks and side effects
- Health education
- Remote monitoring of patients
- Increased awareness about nutrition, hygiene issues, and health risk factors

HEALTH SERVICES

COUNSELING ROUTING AND MANAGEMENT

STRENGTHENING CUSTOMER LOYALTY AND BRAND AWARENESS

First developed for countries like Angola, where good advice often isn't within easy reach, the CreaLog Counseling platform connects clients seeking advice with experts in the desired field of expertise. It is voice- or text-based, offering unsurpassed ease of use along with a low acceptance barrier.

Users can register for the expert portal via voice interaction and are then charged per minute of expert consultation or per text message. CreaLog Counseling is designed to reach people who cannot or prefer not to read written material. Subscribers can request an expert or consultant familiar to them or select a specialist from a given category.

In addition, the CreaLog Counseling service offers advanced communication capabilities, further improving customer loyalty and reducing churn. Customers can evaluate the advice they receive by rating experts and their contributions.

EASY TO IMPLEMENT

There's no need for service providers to build specialized internal skillsets for each and every kind of advice offered: The service relies completely on external sources of expertise. If individuals or organizations are paid their part of the fees collected for the services rendered, they will be easy to find and recruit. Last but not least, you can create steady, dependable revenue with these services.

NEEDS MET

- Creates sustainable value-added services
- Continuous revenue
- Access via mobile, landline, chat, app, SMS, or USSD

BENEFITS

- Enhanced customer loyalty
- Increased brand awareness
- Lowest usage barrier
- Web-based administration with expert rating

TELCO API

WE GENERATE ADDED VALUE

CreaLog has already developed telco APIs for various telcos, enabling them to offer added value to their customers.

API stands for “application programming interface” and refers to an interface that facilitates the exchange of data and functions by linking different software applications. APIs play an important role in the integration of software applications and ensure that they can communicate and work together. Even applications installed as client and server on physically separate computers can benefit from secure data exchange over an IP network or even the internet using an HTTPS-based REST (representational state transfer) protocol.

For telecommunications providers, APIs offer great potential benefits. Standardized and integrated into existing environmental systems, they can be used to make various services and functions of their networks and systems accessible to developers and third-party companies. By providing APIs, telcos can, for example, enable developers to access certain functions of their network and integrate them into their own applications and services. Telcos can also use individual APIs for telephony and SMS functionality, and developers can take advantage of these APIs to provide functions for sending SMS messages, establishing telephone connections, or charging for services in their applications.

In this way, telcos can make their services available to other companies and applications, opening up new business opportunities. APIs can also be used to provide access to customer data, network information, or location services. Access to specific services and functions can be controlled and managed – for example, by assigning access rights or defining terms of use.

NEEDS MET

- Increases revenue with chargeable premium services
- Attracts service providers
- Flexible and easy to manage platform for SMS/RCS management, delivery, and reporting
- Offers access to resources for third-party developers
- Validates rules for content before sending
- Offers connectivity with many back ends
- Supports various protocol dialects or standards for third-party developers

BENEFITS

- Easy provisioning, administration, monitoring, and reporting
- Third parties provide applications and services using network assets
- Service and application are encapsulated and don’t affect other services
- Definable message validation rules
- Multi-channel support for voice and video, SMS, USSD, RCS, Web
- Open interfaces for charging, monitoring, and reporting

CUSTOMER CARE

CUSTOMER CARE

CUSTOMER SERVICE PORTAL

Many telcos are looking for an easy to administer, simple but efficient network-based solution for their one-number customer care concepts. Because they use only one telephone number for all customer requests – be it sales, delivery, RMA, after-sales, or service – they need a sophisticated call steering solution with flexible routing, overflow rules, and message upload.

CreaLog leverages its experience gained through more than hundred projects with the call center industry to enable customer-centric solutions that make both customers and customer care agents happy.

Great Customer Experience

Delivering a great customer experience has become a necessity as telcos seek to win customers through outstanding service and build brand loyalty. Customer experience is a real differentiator in today's market, so more and more of our customers are investing in cutting-edge technologies that offer optimized service and reduce consumer effort.

Natural Language Dialogues

One of the most effective ways to achieve both of these goals is to deploy natural language understanding (NLU) call steering in your customer care IVR. Call steering using speech recognition makes life easy for consumers by simply asking them "How may we help you today?" Consumers love to describe their problem in their own words, without pushing buttons or having to match their question to long lists of predetermined options.

Fast Connection

Connecting callers quickly to the service they need results in improved satisfaction and leads to fewer falsely routed or abandoned calls and greater automation.

Rapid Deployment

CreaLog's One Number Portal provides a natural advantage in creating, deploying, and optimizing your call steering needs. You can independently set up and manage world-class natural language call steering dialogues, routing, and overflow rules.

Automation with Focus on Customers

Our credo: Automate as much and as conveniently as possible, but don't forget the personal touch.

We provide the caller experience your customers want, starting at the contact center's first touch point.

CUSTOMER SERVICE PORTAL – KEY FEATURES

- Keyword search
- Call transcription
- Text analysis
- Individual analysis and assessment
- Complies with current data privacy guidelines
- Multiple level method to anonymize personal information
- Scalable to any extent
- Uses technology from multiple partners for best possible results

CUSTOMER CARE

SELF-SERVICES WITH VOICE AND CHAT BOTS

CreaLog Customer Self-Service for customers care touch points – including voice, chat, SMS, USSD, smartphone apps, and the web – helps operators minimize OpEx for providing the range of customer services needed in a prepaid or postpaid environment.

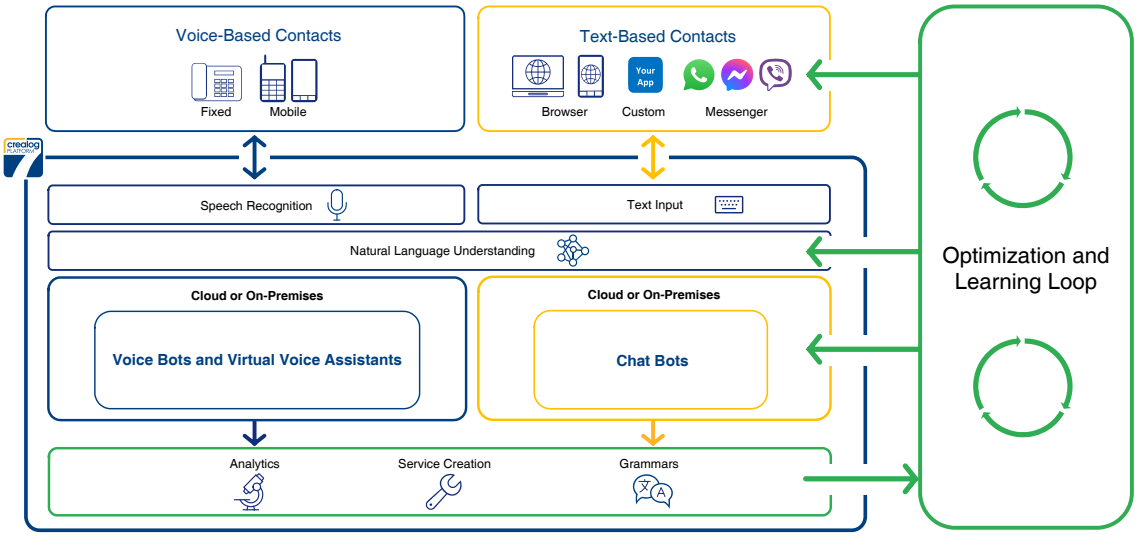
For subscribers, the system is accessible anytime, anywhere. This solution provides secure customer authentication and supports balance information, prepaid top-up, voucher insertion, service activation, SIM card lock/unlock, and handset configuration.

Intent classification takes place via speech recognition or key selection. The Customer Self-Service platform delivers services on the IVR channel via SMS or USSD and uses sophisticated natural language understanding (NLU) speech recognition to deliver fully automated, convenient voice-based services.

The user interface for voice or text is available in more than 50 languages for speech recognition and text-to-speech, offering unsurpassed flexibility and a superior customer experience. Open interfaces to CRM, CTI, and BSS & OSS help enable real-time services with high self-service success.

EXPERTISE

CreaLog leverages its 30 years of expertise with conversational AI and dialogue design to develop voice-controlled experiences for companies and their customers alike. Our bot specialists help CSPs offer their customers services in a simple and modern way.



CUSTOMER CARE

RECORDING AND TRANSCRIPTION

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SPEECH ANALYTICS AND CONVERSATIONAL AI

DISCOVER AND LEVERAGE INSIGHT GEMS

Quality assurance and process streamlining of customer calls are crucial when communicating with customers by phone.

CreaLog Speech Analytics helps analyze the content of these conversations automatically.

You can utilize the results of these analyses for quality assurance, process streamlining, documentation, and handling call center operations. CreaLog Speech Analytics can carry out analyses while calls are in progress as well as by processing call recordings.

BENEFITS TO YOUR ORGANIZATION

CreaLog Speech Analytics can, for instance, help fulfill general legal call documentation requirements. Compliance rules may require consulting calls to be documented and archived to facilitate proof of compliance with pertinent provisions to regulatory authorities.

Record relevant telephone calls and use keyword identification or transcription to determine whether investment consulting has taken place. Other legally relevant facts, such as having advised customers on their right of withdrawal, can also be documented and verified ex-post in this way.

BETTER UNDERSTAND CUSTOMERS

You can use advanced root cause analysis to uncover the underlying reasons for customer calls: Why do customers have questions concerning products or services? Which issues are most relevant for the customer? Are there reasons for their discontent? On what grounds do customers associate your organization with a particular image? What are the main reasons for complaints or contract termination?

IMPROVE PERFORMANCE

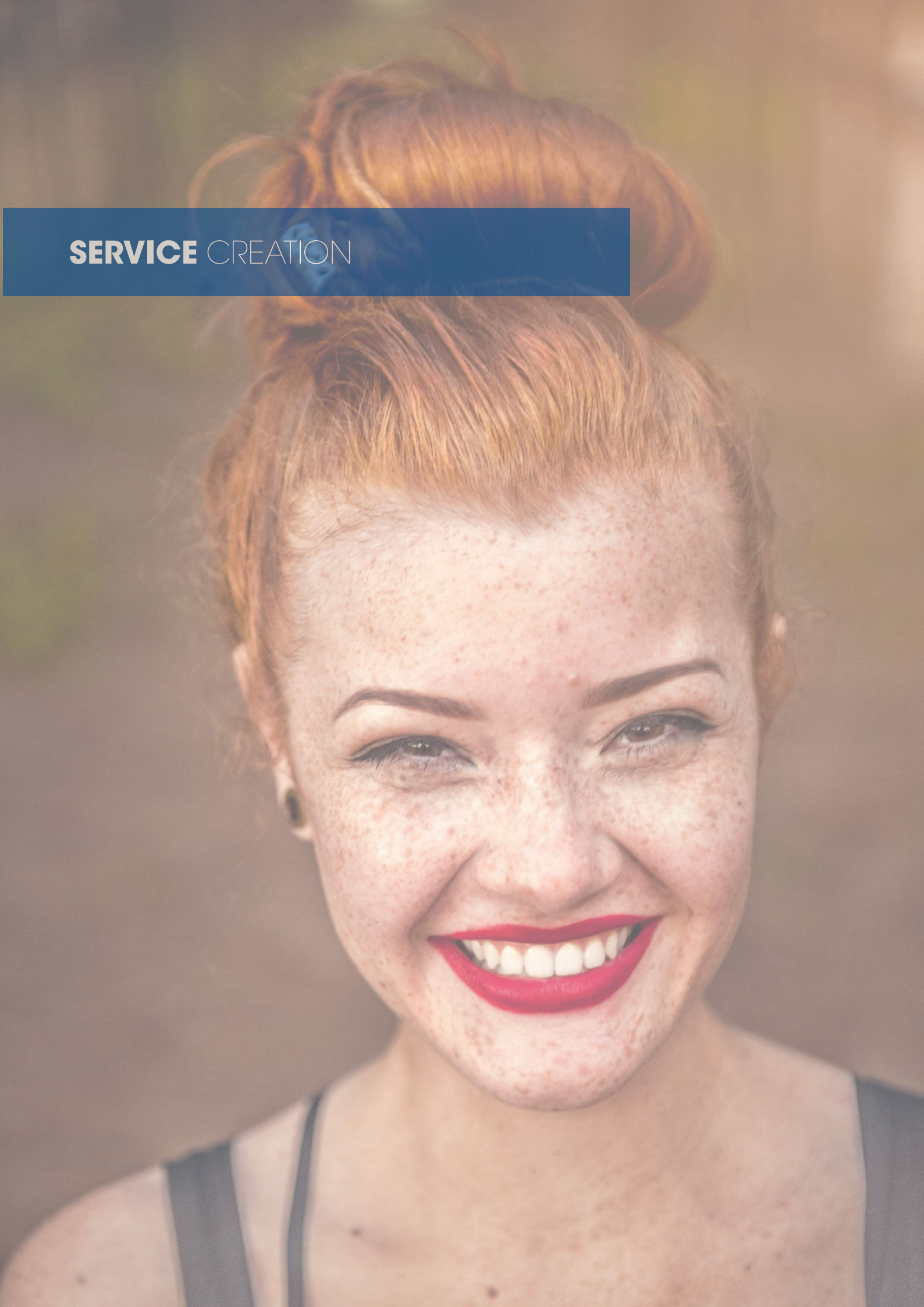
CreaLog Speech Analytics provides a basis for assessing and continuously improving the performance of contact center staff, thus maximizing customer service quality. Analyzing recorded phone calls enables you to determine which staff members need education or training and in which areas.

KEY FEATURES

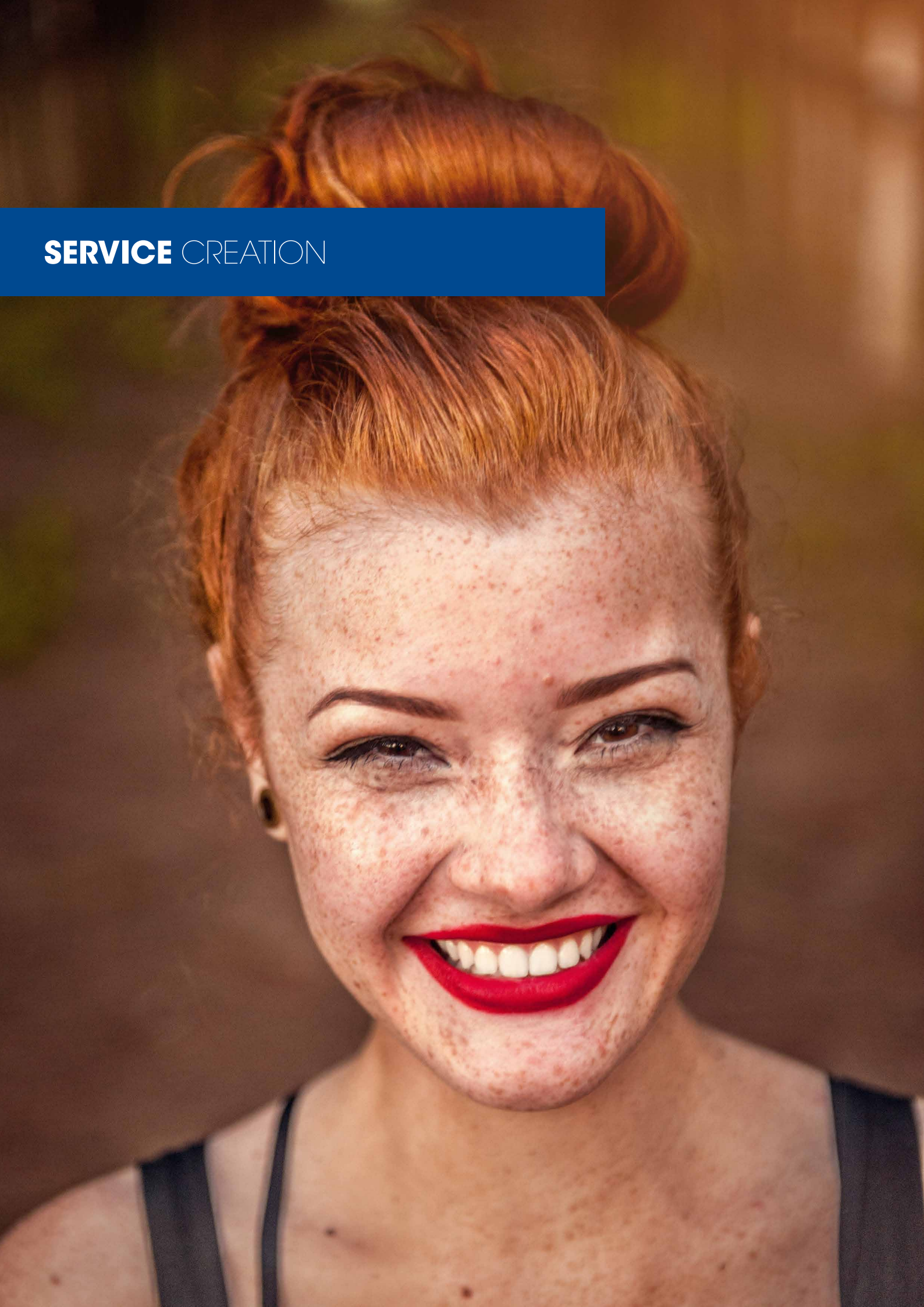
- Keyword search
- Call transcription
- Text analysis
- Individual analysis and assessment
- Complies with data privacy guidelines
- Multiple level method to anonymize personal information
- Scalable to any extent
- Uses best-of-breed technology from multiple partners

BENEFITS

- Information relevant for quality assurance, process streamlining, and handling call center operations
- Customer satisfaction insights
- Insight into organization's image
- Insight into training and education requirements of individual staff members
- Insight into customer service quality
- Identifies relevant topics
- Support for one-number routing
- Identifies potential for automation



SERVICE CREATION



SERVICE CREATION

NO-CODE / LOW-CODE / PRO-CODE

CreaLog offers comprehensive service creation environments for no-code, low-code, and pro-code development.

NO-CODE SERVICE DESIGNER

To begin, our browser-based Service Manager is a basic but powerful no-code call flow designer. It's an integral part of the CreaLog Service Delivery Platform, is simple and efficient, and facilitates the design and implementation of routing designs with voice and keypad user input.

LOW-CODE SCE

Taking service creation a step further, our powerful all-purpose low-code Service Creation Environment (SCE) enables users to easily create and change even highly complex existing workflows. It encompasses call handling, email, RCS, SMS, USSD messaging, chat and voice bot interactions, and much more.

Conversational AI voice and chat bot dialogues using speech recognition, text-to-speech, and voice biometrics are easy to set up.

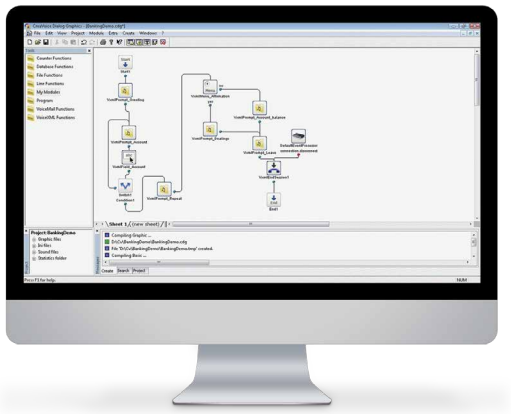
The SCE features a fully graphical user interface and offers more than 100 icons for all kinds of applications. An integrated scripting engine assists in the development of complex calculations and procedures. Feature-rich interfaces enable seamless external connectivity.

A set of ODBC functions is integrated for SQL database access, and for web services, a powerful XML parser supports all the relevant protocols, such as HTTP/HTTPS, XML/SOAP, and RESTful.

Icon libraries for connections with Diameter, LDAP, SMTP/POP3/IMAP, and FTP/sFTP, plus a useful set of universal functions for logging, reporting, tracing, and monitoring, are also part of the standard icon set.

Another comprehensive set of icons supports signaling servers with INAP/CAP/MAP or SIP.

Media resource functions (MRF) are also covered by a large set of icons for call control and audio and video streaming.



PRO-CODE INTEGRATION

An open interface for proprietary extensions, e.g., in C/C++, Java, and Delphi, supports the integration of additional pro-code and new functionalities. Lastly, the SCE supports modularization, code re-usability, versioning, and team collaboration for large projects.

LOW-CODE / PRO-CODE SCE FEATURES

- Easy-to-use, feature-rich, and powerful
- Unified service creation for signaling, media, web, and messaging
- Rapid prototyping
- Fast and reliable code
- Huge icon library for back-end integration and Telecom protocols
- Modularization, versioning, and teamwork
- Consistency check and context-sensitive online help
- Integrated scripting language with 300+ commands
- Open interfaces for C++, Java, Delphi
- Integrated resource management including audio studio
- Instant documentation creation

SPECIFICATIONS & ABBREVIATIONS

SPECIFICATIONS

CreaLog Service Delivery Platform

- Layered architecture
- Distributed or central deployment
- 100,000+ concurrent contacts
- 5,000+ contacts per second
- Designed for 99.999% availability
- Geo-redundant architecture
- All components n+1 / cluster redundant
- Autonomous signaling / MRFP servers
- Hot swappable components
- Virtualization, VMware, OpenStack

Media Server Voice/Video (IVR)

- Up to 1,000 voice channels per server
- Up to 500 fax channels per server
- Up to 580 conferencing channels per server
- Speech recognition in 50+ languages and dialects
- Text-to-speech for 40+ languages and dialects
- Voice biometrics and speaker authentication
- Voice recording with speech analytics
- Conferencing for voice and video
- VXML 2.1, MRCP v1/v2, MSML
- SIP/SIP-I/SIP-T/SIP TLS(AES), (S)RTP
- ISUP/BICC/ISDN/CAS, E1/T1, STM-1
- G.711, G.726, G.729a/b, G.722
- AMR-WB, AMR-NB, EVS
- H.264, H.263, VP8, MPEG-4, 3G-324M
- Fax T.30, T.38
- WebRTC/OPUS

Messaging Server SMS/USSD/RCS

- 500 contacts per second per server
- Regular expression-based analysis
- Protocols: SMPP, HTTP, RCS, UCP, MAP, SIGTRAN

Media Server Web / Chat / Email

- 500 contacts per second per server
- Protocols: SMTP

Signaling Server

- Up to 300 conversations per second per server
- 2,000 parallel conversations per server
- IN suite with service control point (SCP) and assisting IP
- SIP application server
- Service broker
- SIP, INAP/CAP/MAP, MSML

Operations, Administration, and Maintenance (OAM)

- Multi-tenant / multilingual web user interface
- Configuration, reporting, service creation, and provisioning
- User interface for HTML, XML, and HTML5 for iOS and Android
- Suitable for operators, resellers/MVNOs, and end customers
- Rights management with users, groups, profiles, and rights
- Consolidated real-time and historical monitoring and reporting
- Mass provisioning interfaces (CDR, offline transcription, CRM)
- Diameter, charging CDRs, online/offline charging
- SNMP v2

Platform Servers

- Standard Oracle database server or PostgreSQL
- Real-time server for synchronization and counting
- Distribution server for automated software distribution
- Logging server for transaction logging and charging
- Reporting manager for report generation
- Alarm manager

Service Creation Environment

- Consistent workflow creation for signaling, voice, SMS, USSD, web/chat, VXML
- No-code, browser-based graphical user interface with drag-and-drop
- Integrated script engine with 300+ commands
- Integration of databases and web services (XML/SOAP parser)

ABBREVIATIONS

ACD	Automated Call Distribution: Used to distribute incoming calls automatically within a group of terminal devices. This function is used to forward calls to members of a specific group of interchangeable recipients.
ARPU	Average Revenue per User (or Average Revenue per Unit): Term used in accounting.
ASR	Automatic Speech Recognition: Translation of spoken words into text, performed without human intervention.
BHCA	Busy-Hour Call Attempts: Term used to indicate the number of telephone calls attempted in a given telephone system at the busiest hour or peak hour of the day.
BHCC	Busy-Hour Call Completion: Indicates the number of telephone calls successfully completed in a given telephone system at the busiest hour or peak hour of the day. Used to measure the capacity of the network.
BSS	Business Support Systems: Collective term for the business-related components used by a telephone network operator to run the organization.
CapEx	Capital Expenditure: Term used to indicate money spent on corporate assets by purchase or other means.
CAPS	Call Attempts Per Second: Unit of traffic measurement in telecommunication networks.
CDG	CreaLog Dialog Graphics for service creation: This CreaLog development environment is used to create the services present on the SCP, SIP, media, and messaging servers.
CRM	Customer Relationship Management: General term for all concepts and systems an organization may use to manage its interactions with current and future customers.
CSP	Communication Service Provider: CSPs include telecommunications, internet, satellite, and other businesses.
CTI	Computer Telephony Integration: General term for any technology offering concurrent and coordinated interaction on a telephone and a computer. Most CTI systems are desktop workplaces used for serving customers who are calling or being called with the help of a customer database.
DTMF	Dual-Tone Multi-Frequency Signaling: Widely used CAS-type telecommunication signaling method involving tones at specific frequencies being sent over analog telephone lines.
FMC	Fixed-Mobile Convergence.
FWA	Fixed Wireless Access provides internet access to homes using wireless mobile network technology rather than fixed lines. 5G FWA promises to deliver a level of service similar to a fiber-based broadband network.
GSM	Global System for Mobile Communications: Cellular network technology standard developed by the European Telecommunications Standards Institute (ETSI).
GUI	Graphical User Interface: Type of user interface widely used today enabling user interaction with computers and other electronic devices based on graphical images rather than written text.
HSS/HLR	The HSS (Home Subscriber Server) is the combination of the HLR (Home Location Register) and the AuC (Authentication Center).
ICT	Information and Communications Technology: Term used to specifically stress the role of unified communications and the integration of computer hardware and software with telecommunication systems, enabling users to access, store, transmit, and manipulate information of any kind.
IMS	IP Multimedia Subsystem: Set of specifications for delivering multimedia services on IP networks. IMS is based on the SIP protocol and includes services such as VoIP and presence information.
IN	Intelligent Network: Service-based network architecture that forms a layer above the physical (fixed-net and/or mobile) network infrastructure. IN services go beyond standard network services such as telephony and fax and are accessed through specific service numbers.
ISUP	ISDN User Part: Forms part of the application layer of SS7 used to set up telephone calls in a PSTN.
IVR	Interactive Voice Response: Technology that enables humans to interact with a computer by voice or keypad input.
LTE	Long-Term Evolution, also known as 4G: Standard for fast wireless communications for mobile phones and data terminals offering a peak speed of 300 Mbit/s.

ABBREVIATIONS

MRCP	Media Resource Control Protocol: Communication protocol used in distributed systems, such as the internet, enabling remote control of speech (recognition) resources.
MRF	Media Resource Function: Provides media-related functions including media manipulation (e.g., voice stream mixing) and playback. It offers two main functionalities: the Media Resource Function Controller and the Media Resource Function Processor.
MSC	Mobile Service Center: Primary service delivery node for UMTS (3G) networks. Can be used for GSM networks if the manufacturer has implemented the relevant support.
MVNO	Mobile Virtual Network Operator: A provider of wireless communications services who offers services to subscribers without owning the underlying wireless network infrastructure. A MVNO buys services wholesale from a mobile network operator to offer them to customers at a price at their discretion.
NGN	Next-Generation Network: A concept for a packet-switched telecommunication network transporting all kinds of information and services including voice, data, and media of any other kind in packets.
NLU	Natural Language Understanding: Technology enabling computers to understand speech as spoken by humans.
NTS	Number Translation Services: Translates dialed telephone numbers into “connect numbers” based on the subscriber’s geographic location. The technology changes connect numbers without affecting the corresponding dialed numbers.
NSS	Network Switching Subsystem.
OpEx	Operating Expenditure: Used in accounting to indicate the ongoing costs spent to run a business or system.
OSI	Open Systems Interconnection model: A reference model for network protocols in a layered mode.
OSS	Operations Support Systems: Computer systems used by telecommunications service providers to operate and control their networks. These include supporting processes, such as managing network inventory, provisioning services, configuring network components, and re-mediating faults.
PLMN	A Public Land Mobile Network (PLMN) is a terrestrial radio network that provides a public mobile service and can be used by vehicles and pedestrians alike.
PSAP	Presentation Service Access Point: OSI Application Layer protocols, as well as Asynchronous Transfer Mode (ATM), can use Transport (TSAP), Session (SSAP) or Presentation (PSAP) Service Access Points to specify a destination address for a connection. These work similarly to IP addresses in Data Link Layer protocols.
PSTN	Public Switched Telephone Network: Term used for the interconnected, voice-oriented, circuit switched, public telephone networks of the world. PSTNs are almost entirely digital in nature today.
PTS	Per-Trunk Signaling.
SCE	Service Creation Environment: Development environment used to create the services present on the SCP or SIP, Service Delivery Platform, and media server.
SCP	Service Control Point: Standard component of the IN telephone system. SCPs obtain the information they need for their operation from Service Data Points (SDPs) and, using this information, identify the geographical numbers to which calls are to be routed.
SDP	Service Delivery Platform: Usually a set of components that provide a service delivery architecture (such as service creation, session control, and protocols) for a specific type of service.
SEP	Signaling End Points: Part of the SS7 signaling system. In contrast to other network nodes, SEPs do not pass SS7 messages on to other network elements. They provide functions such as subscriber data management (acting as an HLR or SCP) and SMS-related functions.
SIP	Session Initiation Protocol: Signaling protocol for controlling communication sessions, such as voice and video calls, between two or more participants. Used in modern-day communication networks based on the Internet Protocol.
SIP-I	Session Initiation Protocol with encapsulated ISUP: A protocol used to create, modify, and terminate communication sessions based on ISUP using SIP and IP networks.
SMSC	Short Message Service Center: Network component in mobile telephone networks that serves to store, convert, forward, and deliver SMS messages.

ABBREVIATIONS

SQL	Structured Query Language: An English-like programming language used for the special purpose of defining data structures and handling data in database management systems.
SRF	Specialized Resource Function: A node connecting SSP and SCP alike and delivering special resources in a call. Used to play voice announcements or catch DTMF tones from the user.
SS7	Signaling System No. 7: Set of telephony signaling protocols widely used to set up calls in PSTN. Other uses of SS7 include number translation, SMS transmission, and prepaid billing.
SSP	Service Switching Point: The telephone exchange that initially responds when a telephone caller dials a number by sending a query to a central database called a Service Control Point (SCP) so that the call can be handled.
STP	Signal Transfer Point: Name for a router that relays SS7 messages between SEPs and other STPs. A STP is generally connected to adjacent SEPs and STPs via signaling links.
TCO	Total Cost of Ownership.
TDM	Time-Division Multiplexing: Widely used in legacy telephone networks where two or more signals are transferred through a single communication channel concurrently by dividing them into short sections and transmitting these sections in turn.
TTS	Text-to-Speech: Term used for any system used to convert coded text into audible speech.
USSD	Unstructured Supplementary Service Data: GSM protocol for mobile telephones used to communicate with the service provider's system. USSD communications include prepaid callback service, mobile money services, location-based content services, menu-based information services, and other phone services.
VAS	Value-Added Service: Term used by the telecommunications industry for any non-core service. A non-core service is a service beyond an operator’s standard voice calls and fax transmissions.
VLR	Visitor Location Register: Database serving an MSC and containing the subscribers who have roamed into its realm. VLR entries are unique: A subscriber can only be present in one VLR at a time.
VoIP	Voice over IP: Group of technologies, methodologies, and communication protocols used to transmit sound over an Internet Protocol (IP)-based network. VoIP is generally used to unify voice and data networks under the TCP/IP set of protocols and to transmit telephone calls across the internet.
VoLTE	Voice over LTE: Standard for high-speed voice communication for mobile phones and data terminals.
VXML or VoiceXML	VoiceXML is an extension of the markup language XML used to specify voice dialogues between humans and computers. VoiceXML is interpreted by special voice browsers and allows voice applications to be designed and implemented in a comparable way to XML or HTML for visual applications.
XML	Extensible Markup Language: Document markup language that defines a freely extensible set of rules for formatting documents in the widest sense. A specific strength of XML is its readability by machines and humans alike.

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