

UNIFY Service Management Platform

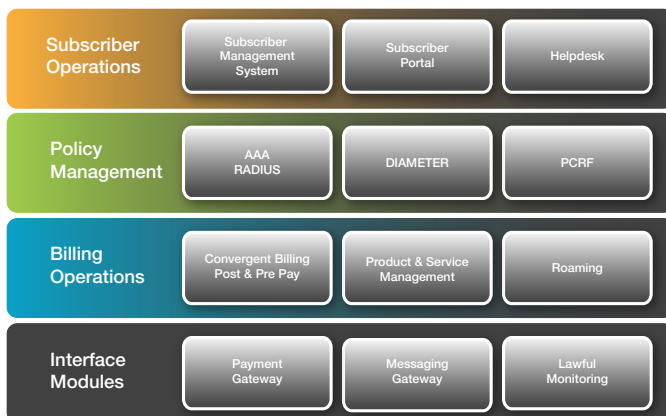
AAA, Billing, Policy & Service Management for Communication Service Providers

Built as a *subscriber centric* operations & billing platform, the UNIFY enables Communication Service Providers (CSP) to rapidly create, provision & charge broadband services.

The UNIFY platform complies with all major industry standards and uses key open technologies such as Java, RADIUS, Diameter & SS7. Any service, be it data, video or voice may be deployed & charged using the UNIFY SMP. Successful deployments exist in all forms of wireless & wire-line networks including DSL, FTTH, WiFi, Cable, Satellite, 2G & 3G mobile.

Comprehensive Modular System

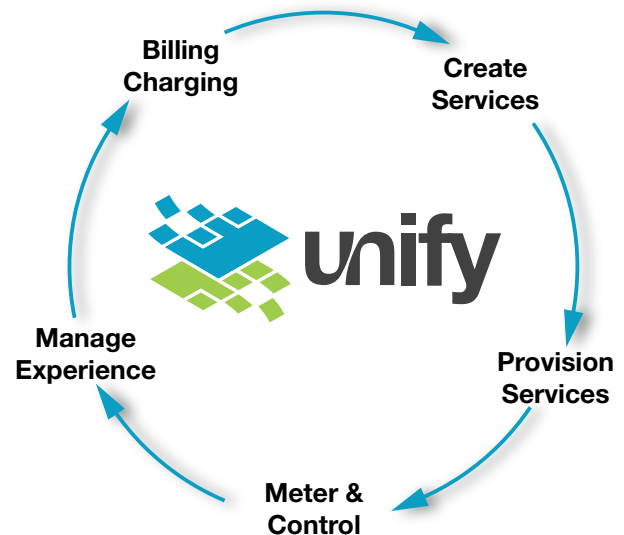
The UNIFY is an entire suite of software applications & modules. The core of the suite consists of infrastructure & common applications elements that are required to provide a functional system. Specific feature modules may be activated based on requirements.



Platform Modules

Subscriber Management System : Capture demographics, service information, provisioning attributes, inventory, network & billing policies in a single consolidated database. Manage millions of subscribers, organized in billable hierarchies using intuitive browser interface. Securely publish to LDAP or integrate via SQL, RADIUS & XML.

Subscriber Portal : Deliver powerful self-care to subscribers including dashboards, registration, bandwidth-on-demand, child account management, service usage graphing & more. Customize using template engine with support for pulling XML data from other network & IT systems. In WiFi or public networks, deliver subscriber acquisition & authentication portals.



Helpdesk : Comprehensive trouble ticketing system for subscriber interaction. Track every request & service issue. Comes pre-integrated with subscriber management system & portal.

AAA & RADIUS : RFC compliant RADIUS server solution pre-integrated with subscriber & service databases, LDAP, authentication & charging modules of the UNIFY. AAA module can be integrated with any network device or IT system that support standard RADIUS protocols. Optional SIGTRAN/SS7 support enables the UNIFY AAA module to effortlessly handle emerging cross network revenue opportunities such as Mobile Data Offload to WLAN.

DIAMETER : Standards compliant DIAMETER implementation for credit control applications (CCA) & policy charging control (PCC). Customized interfaces to IN & other billing & charging systems are easily possible.

PCRF : Comprehensive multimedia network policy control & charging function. Define content charging plans with volume tracking & other policy enforcement. Link your business to your network policies & provision multimedia services in 3G, LTE & emerging 4G networks.

Convergent Billing : Real-time rating & charging engine handling complex service mixes, promotions, discounts and multi-service contracts for next generation multimedia services. Extensive capabilities for pre pay, advance pay & post pay business models. Support for volume charging of data (content), voice, video and value-added services.

Product & Service Management : Graphical, browser based, service plan & catalog management. Mint new services easily with integrated network & monetary policies that are published instantly to the integrated UNIFY policy server.

Roaming : Enable subscriber roaming within different charge domains & geographic divisions. Effortlessly handle inter-operator roaming with support for multi-homed subscriber & service authorization using SS7/SIGTRAN interfaces to multiple HLR & STP systems. Same platform also integrates natively with RADIUS & DIAMETER for IP services. Also supported are iPass®, Boingo® & other aggregators.

Payment Gateway : Streamline payment collection, recharge & on-demand purchases by directly integrating the UNIFY with major payment systems. Support for all leading credit & debit cards, Internet banking systems & Paypal. Using the XML API, the UNIFY can also be integrated with other payment & loyalty card systems.

Messaging Gateway : Unified messaging center for outbound & inbound subscriber & system messaging. Supports mobile SMS, Email & XML interfaces. Streamline subscriber processes such as one-time-password (OTP) or PIN generation for recharge & account activations. Handle inbound SMS messages from subscribers for common tasks like account balance query. Fully customized inbound & outbound message templates & logic.

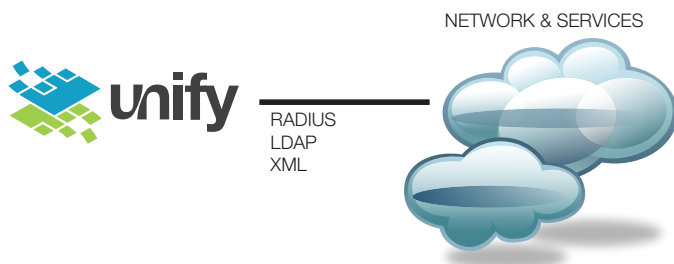
Lawful Monitoring : Centralized logging of subscriber traffic logs with full text search capabilities. Requires compatible monitoring equipment, Inventum MSC Service Controllers are recommended.

Solution Eco-System

The UNIFY is a software solution, deployed on a high availability server cluster for uninterrupted operation.

Other OSS/BSS systems may integrate with the UNIFY using standardized interfaces.

RADIUS, LDAP, SS7, SIGTRAN & XML are most commonly used to interface network infrastructure. Customized interfaces are possible for legacy equipment. The UNIFY has been successfully integrated with leading vendor systems including B-RAS, Service Delivery Routers (SDR), VoIP soft switches, IPTV systems, DPI Controllers, WiMAX infrastructure, WLAN controllers, HLR, Signal Transfer Point (STP) and more.



Deployment

The UNIFY is a software solution, deployed on a high availability server cluster for uninterrupted operation.

Key infrastructure elements of deployment are:

- Operating Systems - Solaris® & Enterprise Linux supported
- RDBMS - PostgreSQL® & Oracle®
- J2EE Application Server
- Web & Portal Servers
- LDAP Directory Servers
- RADIUS Servers - UNIFY RADIUS & AAA module

Typical modules deployed in any UNIFY installation:

- UNIFY Base software
- AAA & RADIUS server module
- Subscriber Management System module
- Subscriber Portal & Helpdesk modules
- Product & Service Management

Solution Scalability

The UNIFY solution can scale from a single server to a multi-server, distributed cluster for high availability deployments.

Installations from under 10,000 subscribers to several million subscribers have been achieved using the UNIFY solution. Start small & grow by adding more servers & licenses on demand.

Each UNIFY component may be scaled incrementally to keep up with growing business demand. For example, the entire Java Application Server can be endlessly scaled (n+1). So can the AAA & database servers. HA deployments may also consider network load balancers for effectively distributing load across multiple servers.

Solution Availability

The UNIFY SMP is made available as a software license with multiple editions to suit specific service provider environments such as WISP, Carrier & Public Hotspot. Inventum provides 24x7x365 support & professional services.

UNIFY Editions

- UNIFY ISP Edition - for networks requiring AAA functions with under a million subscribers.
- UNIFY CARRIER Edition - for convergent service providers requiring comprehensive functionality & millions of subscribers.
- UNIFY modules are specific to a product edition.

Feature Summary

Feature	Description	Benefit
Subscriber Management System	<ul style="list-style-type: none"> Consolidate subscriber directory, complete with subscriber account demographics, credit limits, service information & billing data. Hierarchical subscriber directory organization to reflect customer organization & handle complex charge routing. Publish over LDAP, RADIUS & XML 	<ul style="list-style-type: none"> Consolidate multiple subscriber information databases into a single comprehensive directory. Redirect charges between linked accounts. E.g. Parent company can accept charges for subsidiaries. Provide central unified subscriber directory for various services such as single sign-on (SSO)
Subscriber Portal	<ul style="list-style-type: none"> Customer care & self service web portal that can be fully customized using XML templates Workflow automation support for various OSS tasks related to subscriber acquisition & provisioning 	<ul style="list-style-type: none"> Build rich subscriber web interfaces with real-time network & billing information. Enable service selection, child account management & other self care utilities. Automate self registration & provisioning directly by subscribers. Enable digital versions of customer acquisition forms (CAF) which can be tied to payment & provisioning workflow.
Helpdesk	<ul style="list-style-type: none"> Trouble ticketing & online helpdesk system for use between subscribers & service providers. 	<ul style="list-style-type: none"> Eases interaction with subscribers. May also be used for inter-department communication
AAA	<ul style="list-style-type: none"> RFC compliant RADIUS server that can be scaled for tens of thousands of authentications per second in high availability environments. LDAP integration for high transaction (tps) & distributed deployment environments. Also support RDBMS back-end. Customize RADIUS request handling logic for proxy functions & forking multiple back-end calls to different policy databases or other authentication systems 802.1x support including EAP, PEAP and extensions such as EAP-SIM & WPA-AKA 	<ul style="list-style-type: none"> Deeply integrated RADIUS & AAA within the UNIFY SMP suite makes deployment effortless, removing the need for complex integration. In most cases works out of the box. Fits into any network easily. AAA requests from subscribers can be fielded by the UNIFY AAA and then directed to the correct back-end policy server, database or authentication system providing immense flexibility. EAP-SIM support with DIAMETER & IN extensions allows the UNIFY to be integrated for next generation applications such as 2G/3G mobile data offload.
DIAMETER	<ul style="list-style-type: none"> Standard compliant DIAMETER implementation that complements the AAA 	<ul style="list-style-type: none"> Directly interface with other DIAMETER systems for credit control & policy based charging functions.
PCRF	<ul style="list-style-type: none"> Provide 3GPP compliant policy control & charging function. Comprehensive solution that encompasses subscribers, service plans, policy information, authentication & convergent charging. 	<ul style="list-style-type: none"> Immediate adoption of the benefits of PCRF in any multimedia network enabling sophisticated charging models with integrated policy management. Single system that can be used to create, deliver, meter & bill.
Convergent Billing	<ul style="list-style-type: none"> Multi service convergent billing & rating system. Supports all types of services, charge types, discounts, contracts & promotional service bundles. Also support usage metered plans. Pre-pay, Advance-Pay & Post Pay models are supported. Flexible invoicing with bill printing & electronic delivery options Support credit limits, profiling, hierarchical accounts & more 	<ul style="list-style-type: none"> Integrated solution for billing virtually any telecom service, in any business model. Differentiate your services with metered usage plans & pre-pay offerings. Ultra fast, real-time rating supports any business model for any service Convergent architecture allows products & services to be combined in exciting ways

Feature Summary

Feature	Description	Benefit
Product & Service Management	<ul style="list-style-type: none"> Comprehensive product & service catalog Define pre, advance & post-pay services with integrated policy information such as network QoS & charge pulse. Metered usage linked service plans with pre assigned volume quotas in time and/or bytes Peak, off-peak service timeslots with variable charging & policies Link Customer Premises Equipment to services for experience personalization Publish products/services based on geography, partner networks, franchises & other delegated scenarios. 	<ul style="list-style-type: none"> Consolidate & simplify product management with a browser GUI tool. Mint new services within minutes, complete with policy information, ready to provision subscribers. Enable aggressive advance pay plans that increase ARPU & mitigate bandwidth misuse Charge more for peak hours, discount for off-peak. Location based charging.
VNO & Franchise Channel Management	<ul style="list-style-type: none"> Support for segregation of billing domains within the UNIFY SMP core. This enables a virtual billing instance for each VNO customer or franchisee. VNO/Franchisee management complete with credit control, discounting and white-label services. Service catalogs may also be associated with specific networks. 	<ul style="list-style-type: none"> Support VNO & franchisee networks with no additional management burden. VNO/Franchisee can self administer their subscribers & plans by connecting to the self-service portal of the UNIFY SMP.
Roaming	<ul style="list-style-type: none"> Multi operator, service specific roaming support. Allows metering with real-time or gross monthly settlements Support multiple protocols including DIAMETER, IN, SS7, iPass®, Boingo® & more. 	<ul style="list-style-type: none"> Single unified platform that enables both in-roamers and out-roamers. Support retail or wholesale business models
Payment Gateway	<ul style="list-style-type: none"> Interface module for enabling electronic payments from major credit cards, debit cards, banks & payment aggregation services 	<ul style="list-style-type: none"> Improve subscriber experience when paying bills, enabling pre-pay services or performing top-ups & account recharges.
Messaging Gateway	<ul style="list-style-type: none"> Interface module for enabling mobile short message (SMS), email & IVR on the UNIFY SMP. 	<ul style="list-style-type: none"> Enable multiple channels of communication between subscribers & the UNIFY SMP. Send SMS alerts, activation PIN, bill payment emails & more.
Lawful Monitoring	<ul style="list-style-type: none"> Enable specific lawful monitoring features such as subscriber traffic logging. Country specific. Requires use of Inventum MSC Service Controllers in the network. 	<ul style="list-style-type: none"> Comply with lawful interception & monitoring requirements as stipulated by various governments.
High Availability	<ul style="list-style-type: none"> Multi server, clustered 99.999% uptime system architecture. Modular approach with on-the-fly upgrades Support horizontal and vertical scaling using industry standard solutions. 	<ul style="list-style-type: none"> Available on both Enterprise Linux & Solaris® systems for maximum uptime. Upgrade with least downtime. Start small & grow to millions of subscribers with the same solution
UNIFY Administration	<ul style="list-style-type: none"> Role based GUI for entire system allowing CSR, subscribers and administrators to gain access to all relevant and authorized parts of the system. 	<ul style="list-style-type: none"> UNIFY SMP suite is an entirely browser driven application that allows all stakeholders to directly participate in the creation, delivery & management of next generation communication services.