

# UNIFY Service Management Platform

## AAA, Policy Management, Prepay Charging and Billing for Broadband Service Providers

Inventum's UNIFY is a *subscriber centric* operations & billing platform that allows service providers to rapidly deliver volume metered, differential bandwidth services based on subscriber identity, traffic flow, location & time of access.

The UNIFY is transforming how broadband operators monetize their access networks by allowing them to go beyond the dumb pipe & explore new personalized bandwidth services.

Apart from the above, the UNIFY is also used extensively as a traditional post pay Internet service billing & invoicing platform.

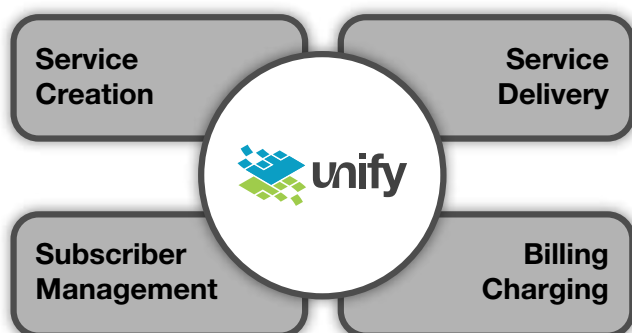
The UNIFY platform complies with all major industry standards and uses open technologies such as Java, XML, RADIUS & Diameter. Any service, be it data, video or voice may be provisioned and charged using the UNIFY SMP.

Customer deployments of the UNIFY span all forms of wireless & wire-line networks including DSL, FTTH, WiFi, Cable, Satellite & Mobile.

### Comprehensive Modular System

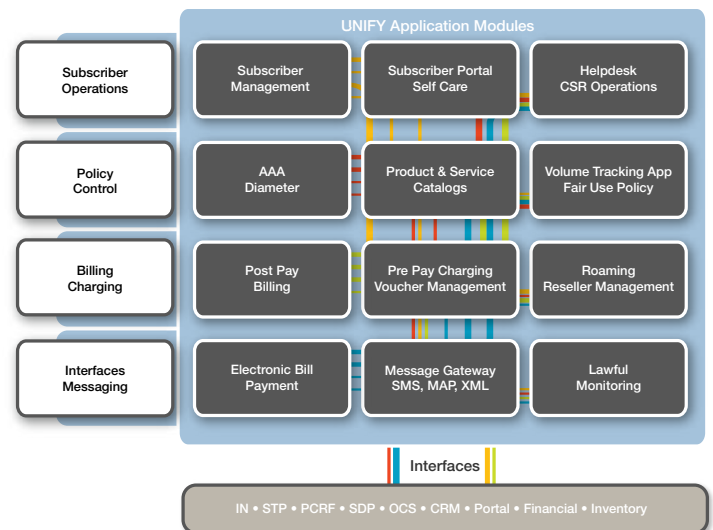
The UNIFY is a modular suite of software applications that may be purchased as required.

The base software license consists of subscriber management system, AAA (RADIUS server based), subscriber self care & administration portal. This may be expanded at any time by the broadband provider based on their needs.



### 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.

**AAA :** 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 3GPP mobile core integration module that enables native MAP queries over SIGTRAN (stack is included). This module is ideal for addressing WiFi Mobile Data Offload business cases and also other cross network revenue opportunities.

**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 allowing broadband services to be integrated into mobile core systems.

**Billing & Invoicing:** Easily bill for complex service mixes, promotions, discounts and multi-service contracts. Support for volume charging of data (including overage), voice, video and value-added services. Customize invoice format with multiple delivery options

**Prepay Online Charging:** Real-time rating & charging engine for broadband services. Support pre & advance pay business models with immediate balance updates. Electronic wallet support. Integrates with UNIFY Voucher Management System for end-to-end prepay business management including PIN, recharge, one-time-passwords, reseller distribution, SMS PIN & more.

**Product & Service Management :** Graphical, browser based, service plan & catalog management. Mint new services easily with integrated network & monetary policies. Pre-integrated with AAA system for instant roll-out.

**Volume Tracking Apps (VTA) :** Enables usage quotas against specific service plans. Used to trigger overage billing or enforce fair usage policies (FUP). Supports automatic service downgrades or termination upon hitting quota limits. Pre-integrated with product & service management tools allowing FUP to be configured directly inside the plan itself.

**Subscriber Portal :** Deliver powerful self-care to subscribers including dashboards, self registration, bandwidth-on-demand, child account management & service usage reports. Fully customize using XML API. Allows advertising insertion, per location or re-seller branding as required.

**Helpdesk :** Trouble ticketing system for subscriber interaction. Track every request & service issue. Pre-integrated with subscriber management system & portal.

**Electronic Payment :** 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. Using the XML API, the UNIFY can be integrated with other payment & loyalty card systems.

**Messaging Gateway :** Unified messaging center for customized outbound & inbound subscriber alerts, system messaging & self care. Enables UNIFY to interface via SMS, Email, MAP/SIGTRAN & XML API. Frequently used to handle everything from authentication to subscriber balance alerts via mobile SMS.

**Lawful Monitoring :** Centralized logging of subscriber Internet URL logs with full text search. Requires compatible monitoring equipment such as Inventum MSC Service Controllers.

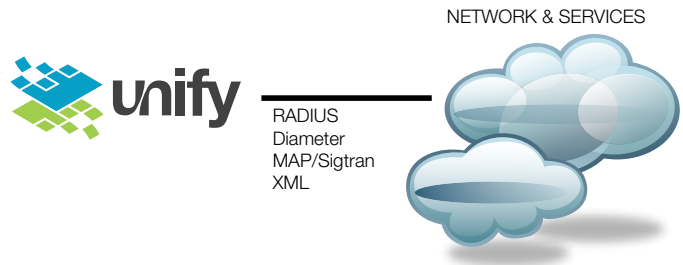
**Roaming :** Enable subscriber roaming within different charge domains & geographic divisions. Inter-operator roaming with support for multi-homed subscriber & service authorization. Also supported are iPass®, Boingo® & other aggregators.

## Solution Eco-System

The UNIFY is a software solution, deployed on a high availability server cluster for uninterrupted operation. Other OSS/BSS systems integrate with the UNIFY using standardized interfaces.

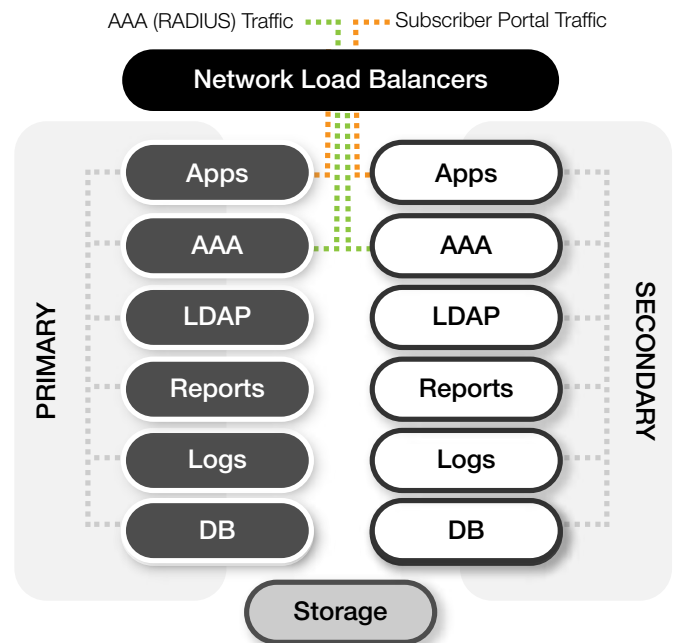
Network elements such as aggregation routers, access controllers, service gateways or other policy enforcement systems interface with the UNIFY using industry standard interfaces such as RADIUS, Diameter, MAP/SIGTRAN & XML.

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) & SDP.



## Deployment & Scalability

The UNIFY is a software solution, deployed on a high availability server cluster for uninterrupted operation. n+1 scalability is possible by adding additional servers to handle increased load.



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

## Solution Availability

The UNIFY SMP is made available as a perpetual, subscription or private cloud software license with multiple options to suit specific service provider environments such as WISP, Carrier & Public Hotspot.

Inventum provides 24x7x365 support & professional services through a network of qualified partners & solution integrators.

## Feature Summary

| Feature                                 | Description   | Benefit   |
|---|---|---|
| <b>Subscriber Management System</b>     | <ul style="list-style-type: none"> <li>Consolidate subscriber directory, complete with subscriber account demographics, credit limits, service information &amp; billing data.</li> <li>Hierarchical subscriber directory organization to reflect customer organization &amp; handle complex charge routing.</li> <li>Publish over LDAP, RADIUS &amp; XML</li> </ul>  | <ul style="list-style-type: none"> <li>Consolidate multiple subscriber information databases into a single comprehensive directory.</li> <li>Redirect charges between linked accounts. E.g. Parent company can accept charges for subsidiaries.</li> <li>Provide central unified subscriber directory for various services such as single sign-on (SSO)</li> </ul>  |
| <b>Subscriber Portal</b>                | <ul style="list-style-type: none"> <li>Customer care &amp; self service web portal that can be fully customized using XML templates</li> <li>Workflow automation support for various OSS tasks related to subscriber acquisition &amp; provisioning</li> </ul>  | <ul style="list-style-type: none"> <li>Build rich subscriber web interfaces with real-time network &amp; billing information. Enable service selection, child account management &amp; other self care utilities.</li> <li>Automate self registration &amp; provisioning directly by subscribers. Enable customer acquisition forms (CAF) which can be tied to payment &amp; order management workflow.</li> </ul>  |
| <b>Helpdesk</b>                         | <ul style="list-style-type: none"> <li>Trouble ticketing &amp; online helpdesk system for use between subscribers &amp; service providers.</li> </ul>   | <ul style="list-style-type: none"> <li>Eases interaction with subscribers. May also be used for inter-department communication</li> </ul>   |
| <b>AAA</b>                              | <ul style="list-style-type: none"> <li>RFC compliant RADIUS server that can be scaled for tens of thousands of authentications per second in high availability environments.</li> <li>LDAP integration for high transaction (tps) &amp; distributed deployment environments. Customize RADIUS request handling logic for proxy functions &amp; forking multiple back-end calls to different policy databases.</li> <li>802.1x support including EAP, PEAP and extensions such as EAP-SIM &amp; WPA-AKA</li> </ul>                               | <ul style="list-style-type: none"> <li>Deeply integrated AAA within the UNIFY SMP suite makes deployment effortless, removing the need for complex integration. In most cases works out of the box.</li> <li>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.</li> <li>EAP-SIM with native 3GPP interfaces to mobile core allows the UNIFY to be integrated for next generation applications such as Mobile data offload to WiFi.</li> </ul> |
| <b>Billing &amp; Invoicing</b>          | <ul style="list-style-type: none"> <li>Multi service convergent billing system. Supports all types of services, charge types, discounts, contracts &amp; promotional service bundles. Also support usage metered plans.</li> <li>Flexible invoicing with bill printing &amp; electronic delivery options</li> <li>Support credit limits, profiling, hierarchical accounts &amp; more</li> </ul>   | <ul style="list-style-type: none"> <li>Integrated solution for billing virtually any telecom service, in any business model. Differentiate your services with metered usage plans &amp; pre-pay offerings.</li> </ul>   |
| <b>Prepay Online Charging</b>           | <ul style="list-style-type: none"> <li>Prepay rating &amp; charging engine</li> </ul>   | <ul style="list-style-type: none"> <li>Launch usage linked, pre &amp; advance pay services. Support electronic wallets in multi-service environments.</li> <li>Cater to both pre &amp; advance pay models.</li> </ul>   |
| <b>Product &amp; Service Management</b> | <ul style="list-style-type: none"> <li>Product &amp; service catalog with integrated policy definition</li> <li>Define pre, advance &amp; post-pay services with integrated policy information such as network QoS &amp; charge pulse.</li> <li>Usage linked service plans with pre assigned volume quotas in time and/or bytes</li> <li>Peak, off-peak service timeslots with variable charging &amp; policies</li> <li>Publish products/services based on geography, partner networks, franchises &amp; other delegated scenarios.</li> </ul> | <ul style="list-style-type: none"> <li>Consolidate &amp; simplify product management with a browser GUI tool.</li> <li>Mint new services within minutes, complete with policy information, ready to provision subscribers.</li> <li>Enable aggressive advance pay plans that increase ARPU &amp; mitigate bandwidth misuse</li> <li>Charge more for peak hours, discount for off-peak. Location based charging.</li> </ul>  |

## Feature Summary

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|--|--|---|
| <b>Volume Tracking Application &amp; Fair Usage Policy (FUP)</b> | <ul style="list-style-type: none"> <li>Link services to time or data volume quotas.</li> <li>Apply FUP based on triggers of usage (or misuse) with automatic service plan change or speed degradation.</li> <li>Multi tiered FUP e.g. condition 1 met, switch to policy 1; if condition 2 also met, further switch to policy 2 &amp; so on.</li> </ul> | <ul style="list-style-type: none"> <li>Improve ARPU by charging overage</li> <li>Reduce misuse of network; Charge premium for unlimited plans.</li> </ul>   |
| <b>Reseller &amp; VNO Management</b>                             | <ul style="list-style-type: none"> <li>Organize resellers into different domains each acting as a virtual billing system silo.</li> <li>Each reseller has access to administrative &amp; subscriber portal whose features are controlled by the parent provider.</li> </ul>  | <ul style="list-style-type: none"> <li>Support white-label VNO or centrally managed reseller channel.</li> <li>Completely automate business process of selling &amp; delivering services through resellers.</li> </ul>                                  |
| <b>Roaming</b>   | <ul style="list-style-type: none"> <li>Multi operator, service specific roaming support.</li> <li>Allows metering with real-time or gross monthly settlements</li> <li>Support multiple protocols including WISPr, iPass®, Boingo® &amp; more.</li> </ul>  | <ul style="list-style-type: none"> <li>Single unified platform that enables both in-roamers and out-roamers.</li> <li>Support retail or wholesale business models</li> </ul>  |
| <b>Payment Gateway</b>   | <ul style="list-style-type: none"> <li>Interface module for enabling electronic payments from major credit cards, debit cards, banks &amp; payment aggregation services</li> </ul>   | <ul style="list-style-type: none"> <li>Improve subscriber experience when paying bills, enabling pre-pay services or performing top-ups &amp; account recharges.</li> </ul>   |
| <b>Messaging Gateway</b>   | <ul style="list-style-type: none"> <li>Interface module for enabling mobile short message (SMS), Email, MAP/Sigtran &amp; XML.</li> </ul>  | <ul style="list-style-type: none"> <li>Automate various system &amp; subscriber processes, alerts, etc.</li> </ul>  |
| <b>Lawful Monitoring</b>   | <ul style="list-style-type: none"> <li>Enable specific lawful monitoring features such as subscriber traffic logging. Country specific.</li> <li>Requires use of Inventum MSC Service Controllers in the network.</li> </ul>   | <ul style="list-style-type: none"> <li>Comply with lawful interception &amp; monitoring requirements as stipulated by various governments.</li> </ul>   |
| <b>High Availability</b>   | <ul style="list-style-type: none"> <li>Multi server, clustered 99.999% uptime system architecture.</li> <li>Modular approach with on-the-fly upgrades</li> <li>Support horizontal and vertical scaling using industry standard solutions.</li> </ul>   | <ul style="list-style-type: none"> <li>Available on both Enterprise Linux &amp; Solaris® systems for maximum uptime.</li> <li>Upgrade with least downtime.</li> <li>Start small &amp; grow to millions of subscribers with the same solution</li> </ul> |
| <b>Role based Administration Portal</b>                          | <ul style="list-style-type: none"> <li>Role based GUI for entire system allowing CSR, subscribers, resellers and administrators to gain access to all relevant and authorized parts of the system.</li> </ul>  | <ul style="list-style-type: none"> <li>UNIFY SMP suite is an entirely browser driven application that allows all stakeholders to directly participate in the creation, delivery &amp; management of next generation communication services.</li> </ul>  |

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