

SERVICE & IDENTITY AWARE NETWORKS

Dynamic Service Creation, Control and Metering Platform for Multi-Play Services

Building profitable broadband networks requires constant innovation, dynamic operations and quality execution. With intense competition, similar service offerings and relatively static service delivery infrastructure, operators can differentiate little.

Inventum's MSC controllers equip service providers to change the rules of the game by making the entire network service delivery infrastructure dynamic, identity and service centric. When paired with a modern service management platform such as Inventum's UNIFY SMP, the MSC brings unprecedented capability to mint new revenue earning service offerings that help differentiate from the mundane.

Service Delivery Routing

Imagine a service router that understands customer service plans. Working alongside large aggregation & service routers, the MSC is capable of dynamically enforcing business & network policies derived directly from a billable customer service plan.

The MSC encapsulates complex routing, authentication, security & billing definitions into simple, manageable service & identity profiles. These profiles can be directly integrated using standard AAA or SOAP/XML with the MSC.

Identity Centric Virtualization

Unlike traditional routers, everything inside the MSC is contextual to the identity of a subscriber. This includes associated traffic forwarding, routing, metering, filtering and security policies. Using this approach, service providers can dynamically & effortlessly provision services as subscribers authenticate anywhere within the network.

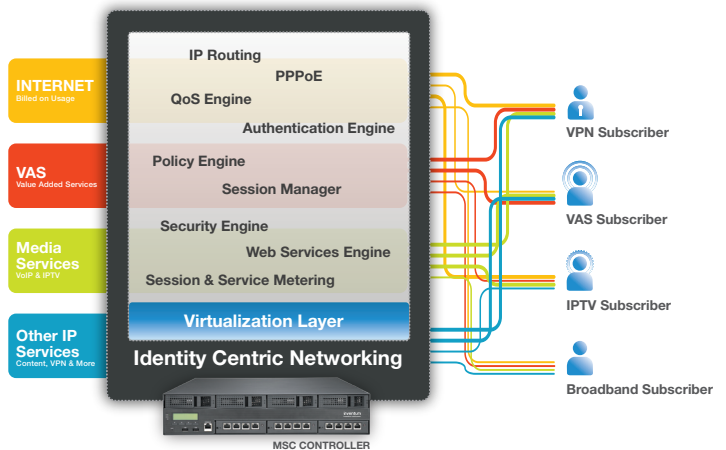
Subscriber & Service Provisioning

Subscribers are authenticated by the MSC using both passive & inter-active schemes. Effective schemes can be built using any service linked attribute such as session MAC, VLAN, IP/CIDR, hotspot style web page login & even attributes derived from external authentication sources.

Authentication schemes are directly derived from customer service plans and hence are identity specific allowing unprecedented personalization. Once authenticated, the MSC provisions the associated service profile that then controls on a per subscriber basis, session speed & usage quota limits, per service QoS, virtual routing, security filters, content filters and service metering.

Real-time Metering & Billing (Pre-Pay)

The MSC provides a convenient way for service providers to implement volume based plans such as those limited by bytes transferred or hours spent on the network. When deployed using RADIUS, the



Powerful identity centric network virtualization. Each subscriber session handled in a virtual layer for unprecedented control.

MSC can send timely updates for real-time balance rating and also terminate sessions which run out of balance or do not conform to a policy. Time-of-day, day-of-week, peak, off-peak, discounted pre-rating and similar business cases can be catered for effortlessly.

Service Selection & Portal Support

Out-of-the-box support for enabling self-service dashboards including self provisioning, session reporting and per subscriber personalizations using the MSC's SOAP/XML API. It is extremely simple to interface the MSC with any web portal framework. For Inventum's UNIFY SMP customers, the MSC provides a pre-integrated *subscriber & service selection dashboard*.

Virtual Engines

The MSC is driven by several *virtual engines*. These engines are used as building blocks when creating service profiles and include the following:

- **Advanced IP Routing Engine**
- **Session Security Engine**
- **Policy & Identity Management Engine**
- **Bandwidth Management Engine**
- **Session Metering & Billing Engine**
- **Lawful Tracking Engine**

Multiple Modular Appliances



MSC-3000 Series

Feature	Description
Identity Aware Platform	<ul style="list-style-type: none"> Virtual networking per subscriber with unprecedented session personalization. Multi-play, multi-service architecture.
Flexible Authentication	<ul style="list-style-type: none"> Standard compliant AAA support including RADIUS & LDAP. Captive portal redirection & login. Authentication based on network attributes & traffic sources. For example, MAC, IP/CIDR & VLAN.
Service & Session Management	<ul style="list-style-type: none"> <i>Identity & service profile</i> driven that allows easy abstraction from service plans. Mint new, identity aware services easily. Authenticate & provision on the fly. Comprehensive session & service QoS including CIR/BIR, peak/off-peak & pre scheduled scenarios. In session upgrades & downgrades without disconnection. Per session virtual routing & security filters. Real-time session usage metering, reporting & usage quota enforcement. SOAP/XML API for interfacing to session manager.
Flexible Networking	<ul style="list-style-type: none"> Deploy as L2 (bridge) or L3 router. Support PPPoE* aggregation. Support DHCP, DHCP relay, DNS relay, static and dynamic (OSPF & BGP)* routing. Service plan linked policy routing. Virtual route tables per subscriber. Multiple ingress ports, optical & Ethernet.
Pre-Pay/Usage Billing Ready	<ul style="list-style-type: none"> Support for pre-pay rating & billing with real-time session management & metrics. Easily enable volume/usage plans. Simple RADIUS and SOAP/XML. Interface to any billing system using AAA.
Last-Mile Agnostic	<ul style="list-style-type: none"> MSC works purely on the Ethernet & IP layers. Supports any last-mile access technology, including WiFi, WiMAX & DSL.
High-Availability*	<ul style="list-style-type: none"> 1+1 active clustering with stateful failover for demanding networks. Passive Bypass mode for bridge networks
Easy Administration	<ul style="list-style-type: none"> Role-based CLI over SSH (secure shell) SOAP/XML API interface from OSS/BSS Comprehensive logging to external Syslog SNMP based metrics gathering

* Optional modules. Please check with sales.

SOLVING PROBLEMS

Which networks can the MSC work with?

The MSC is transport agnostic and works with any IP network. Depending on your choice of last-mile technology, certain features may have specific bearing. For example, VLAN & Ethernet MAC based session authentication will not work if your access equipment does not support bridging these layer 2 technologies.

The MSC has been widely deployed in Ethernet, WiFi, WiMAX, MESH, Satellite, EPON, GPON and cable DOCSIS networks. Choose from sub gigabit to multi-gigabit appliance versions that can support thousands of concurrent subscribers.

What is Identity Centric Virtualization?

Unlike ordinary routers and switches, the MSC handles traffic with the context of who the traffic belongs to. To identify the owner of the traffic and hence establish the identity, the MSC uses multiple techniques. These include analyzing packets as well as forcing subscribers to authenticate before permitting network sessions. Authentication can be for humans or even network devices (CPE) using a variety of well established standards - 802.1x, web page login, LDAP & RADIUS. Once identity is established, the MSC creates a personalized, virtual network for each user. Inventum refers to this as *Identity Centric Virtualization*.

Where in my network does the MSC fit?

For existing broadband networks which already own a B-RAS, the MSC can be deployed adjacent to the B-RAS forking traffic that requires the functionality of the MSC.

In green field environments, the MSC can either act as the main service router or as a *bump-in-the-wire* policy enforcement & metering tool. MSC controllers are available in multi-gigabit, high availability configurations for carrier class networks.

What type of billing can the MSC support?

Multi-service, pre-paid, advance-pay & post-pay billing can be implemented with the help of the MSC. This includes services limited by time, volume & validity cycle. The MSC provides a standard AAA interface that any billing system can use.

The MSC also provides a SOAP/XML API that can be used for dynamic session control, real-time session reporting, in-session upgrades and other interactive features.

09
March

www.inventum.cc
sales@inventum.cc

AMERICAS

Inventum International Ltd.
Suite 600 Millennium Center
15455 Dallas Parkway
Addison, Texas 75001 USA
Tel. +1 (214) 233-0659

ASIA & EMEA

Inventum Technologies (P) Ltd.
B-5, Sector 6,
Noida UP, 201301
India
Tel. +91 (120) 427 4900

©2008-2009 Inventum International Limited. All rights reserved. Inventum is a registered trademarks of Inventum Technologies Private Limited in various countries. The names of actual companies and products mentioned herein may be the trademarks of their respective owners. Although Inventum has attempted to provide accurate information in these documents, Inventum assumes no legal responsibility for the accuracy or completeness of the information. Please note that no Inventum statements herein constitute or contain any guarantee, warranty or legally binding representation. All materials contained in this publication are subject to change without notice, and Inventum reserves the right to change, modify, transfer, or otherwise revise this publication without notice.