

ULTIMATE HOTSPOT CONTROLLER

Enable public hotspots & hot-zones easily.

Deploying public hotspots is more than simply installing WiFi access points. As the world is held to ransom by terrorism, public hotspots have been under scrutiny by law makers worldwide. Responsible venue owners are looking for a comprehensive solution that can enable both free & paid, secure, accountable wireless Internet access.

Introducing the MSG Hotspot Edition, a hotspot controller that provides best-in-class features for hotspot management including the crucial lawful tracking & interception pieces.

All-in-one Convenience

On-board the MSG are all the key building blocks your hotspot needs to get started. These include the access gateway, router, RADIUS, session manager, lawful tracker and billing system.

The MSG can be deployed with any access point network. Wireless subscribers are acquired over open SSID based secure (SSL) sign-up pages. Returning subscribers can be directly associated to secure BSSID running your choice of authentication - 802.1x, WPA Personal, WPA Enterprise, RADIUS, source MAC & VLAN. Virtual AP or multi SSID support is available out-of-the-box with session segregation into secure VLAN.

Some of the key features:

- Complete networking stack - DHCP, DNS, NAT, DNAT, SMTP relay and more.
- Built-in pre-pay billing. Meter & bill each session, including real-time pre-paid plans.
- Provision sessions with personalized bandwidth & quota limits.
- One-time-password and PIN generation support.
- On-board RADIUS. Also support external proxy RADIUS & LDAP
- Unique *Inventum Hotspot Assistant* software for use with Microsoft Windows 2000/XP/Vista. Allows operators to ease subscriber experience.

MSG's web services API is used to interface with external IT systems like roaming providers, third party billing, NMS and financial systems.

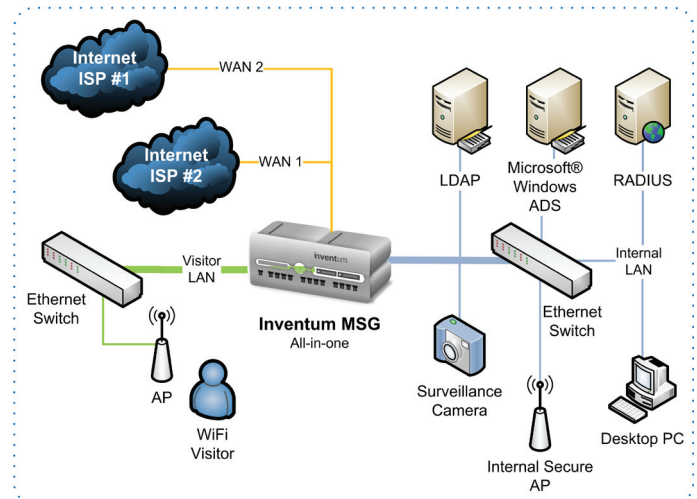
Subscriber Centric Virtualization

Similar to virtualization technology found on modern servers, the MSG brings *identity centric virtualization* to the network. Each subscriber session executes inside a personalized environment which allows unprecedented control of his/her traffic. For example, each subscriber can have unique routing tables, security filters & QoS.

Virtual Engines

MSG is driven by the following functional blocks or engines:

- **IP Router** - Standards based static and dynamic routing. Identity based session routing.



MSG appliance authenticates, provisions & controls WiFi traffic

- **Policy & Identity Management Engine** - Design, store & enable subscriber policies directly on the MSG. Support real-time query of external policy servers (RADIUS, LDAP, Windows ADS).
- **Bandwidth Management Engine** - Enable dynamic QoS capabilities based on nature of traffic & subscriber identity. Integrated with subscriber plans, the engine enforces per session CIR/BIR & other QoS parameters. Automatic, differential bandwidth policies based on peak/off-peak hours, time-of-day, day-of-week and other service plan policies.
- **WAN Link Load Balancer** - Manages multiple ISP uplinks. Split, policy route or use as active-passive configuration to optimize your WAN bandwidth providers. Specify link affinity based on subscriber's service plan, for example, pre-paid traffic to link 1, others to link 2.
- **Session Metering & Billing Engine** - Create multi service billable packages & plans. Native session CDR creation directly on appliance. Rate & charge CDR to subscriber accounts in real-time. Support auto-disconnection in case of balance expiry on pre-paid plans. Export CDR/IPDR to external systems.
- **Analytics Engine** - On device reporting and analysis including session metrics, URL logs, security logs, trends, alerts and alarms.
- **Lawful Tracking** - protect network from unlawful use particularly to comply with government regulations in specific countries.

Multiple Modular Appliances



MSG-3000 Series

Feature	Description
Identity Aware Platform	<ul style="list-style-type: none"> Virtual networking per subscriber with unprecedented session personalization.
Secure Subscriber Acquisition	<ul style="list-style-type: none"> SSL sign-on pages 802.1x, WPA Personal & Enterprise
Access Gateway Functions	<ul style="list-style-type: none"> Static & dynamic routing, DHCP, DNS, NAT, SNAT & DNAT. Support PPPoE & custom hotspot assistant dialers.
AAA	<ul style="list-style-type: none"> On-board or external RADIUS* support. Authenticate using forced portal, IP/CIDR, MAC, VLAN or combination of any. Authorize other controllers, access points or RADIUS compliant. Account time, volume & session usage.
Usage Based Billing	<ul style="list-style-type: none"> Design quota plans with limit on time, bytes, billing cycle & speed. Support bandwidth schedules for peak, off-peak, day-of-week & holiday plans. Pre-pay & advance-pay <i>top-up</i> plans. Support automatic disconnection, running session upgrades & downgrades. Payment gateways* and roaming* support.
One-time-passwords (OTP) and PIN Management	<ul style="list-style-type: none"> Generate and distribute OTP/PIN via web page, email, scratch card & vouchers. Premium SMS support
Bandwidth Management	<ul style="list-style-type: none"> Committed or burstable limit on each subscriber session or shared groups. Unique 3-tier queuing algorithm. Allows service plan or package affinity to specific WAN links e.g. pre-pay plan to link #1.
Role Based Administration	<ul style="list-style-type: none"> Restrict administration rights based on roles.
Gateway Load Balancing & Automatic Fail-over*	<ul style="list-style-type: none"> Weight & affinity based load balancing. Automatic failure detection & switch over to surviving link(s).
Subscriber Portal & Self-care	<ul style="list-style-type: none"> Customizable self care portal. Online registration, top-up, report viewing, bandwidth graphs, usage logs & more.
Reporting & Lawful Tracking	<ul style="list-style-type: none"> Graphical & textual reports. Complete session & URL history as required by various law agencies
High Availability*	<ul style="list-style-type: none"> Models with high-availability options. Active-passive with heartbeat & bypass.

* Optional modules. Please check with sales.

SOLVING PROBLEMS

Which access points can I use with MSG?

The MSG is transport agnostic and works with any access point. Depending on your requirements for 802.1x, you may have to select an access point that has support for this feature.

The MSG has been widely deployed with Cisco, Wavion, Ruckus, Ubiquiti, D-Link, Zyxel, Buffalo, Skypilot, Firetide, Proxim and other leading wireless equipment providers.

What is Identity Centric Networking?

Unlike ordinary routers and switches, the MSG handles traffic with the context of who the traffic belongs to. To identify the owner of the traffic and hence establish the identity, the MSG 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, Windows ADS, LDAP & RADIUS. Once identity is established, the MSG creates a personalized, virtual network for each subscriber. Inventum refers to this as *Identity Centric Networking*.

How do I comply with public hotspot laws?

Each country has varying laws regulating the open provisioning of access points to curb illegal use. Almost all countries now require mandatory link encryption and pre-verification of connecting subscribers.

The MSG provides a robust, flexible platform that:

- Allows verified new subscriber acquisition
- Secures wireless transport using WPA standards
- Tracks IP address allocation & prevents hijacking
- Maintains usage logs for each session

For your specific requirements please contact us.

What type of billing can the MSG support?

Both pre-paid and advance-pay billing is supported by the MSG. This includes services limited by time, volume & validity cycle. External RADIUS query on per subscriber basis is possible, though not required as subscriber & billing database is kept on the MSG.

Tools for PIN generation, account top-up & an account ledger are provided. Customizable subscriber self-care portal is also bundled with features to check usage & manage services.

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