



Motorola NBBS Device Management Platform

The Motorola NBBS device management platform allows service providers to expand broadband service revenues while reducing operational and support costs through automated service provisioning and comprehensive device management.

Highlights

- Flexible support for IP services allows network operators to centrally monitor and manage service delivery for DSL, Cable, WiMAX, femtocell, and GSM/UMTS and CDMA wireless services.
- Scalable device management allows network operators to manage millions of devices with automated tasks and service provider-specific business logic.
- Service-aware provisioning simplifies activation of new services, including high-value services such as IPTV and triple-play voice, video, and data services.

NBBS provides centralized service and device management for IP-based consumer premises equipment (CPE), including broadband gateways, Cable and DSL modems, WiMAX gateways, Voice-over-IP (VoIP) gateways, femtocells, Webcams, and set-top terminals. Efficient management of this broad array of devices enables the system to facilitate higher-level functionality such as media mobility and fixed-mobile convergence of IP services.

Implementing Service Assurance

The IP world is becoming increasingly complicated, and Motorola offers innovative solutions that allow service providers to assure the delivery of services to the edge of the network. Motorola provides the products, systems, and professional services that enable efficient and reliable visibility into the connected home and beyond. Service providers—whether they are carriers, mobile network operators, or cable operators—can rely on Motorola service assurance solutions to help them exceed customer expectations by allowing them to diagnose and resolve problems remotely both in the home or on the mobile network—online and in real time.

Motorola NBBS provides centralized service and device management for IP-based consumer equipment. It enables zero-touch configuration, firmware updates, and active monitoring of consumer equipment for the activation, management, and support of QoS-sensitive services, such as VoIP and IPTV. NBBS provides seamless integration into existing provisioning, billing, and Operational Support Systems (OSS) applications,

and it delivers powerful device management of configurable devices at the network edge. Motorola NBBS helps to lower operator costs by reducing truck rolls and lowering operational expenses. It also helps to increase revenues by accelerating new service introduction. NBBS enables an excellent end-user experience that can improve the relationship between the carrier and the subscriber.

Deploying a Single System to Manage All Devices and Services

Regardless of the access technologies they utilize, all service providers face increased competition, ongoing threats of commoditization, and the challenge of effectively managing subscriber expectations despite flat or declining service pricing. Innovative new services and the ability to continuously satisfy customer expectations make service assurance essential, even as the providers face the challenge of delivering exciting new services to retain existing customers and attract new ones.

Historically, service assurance was vertically integrated; a single device ran a simple application to deliver a service. Consumers did not have home networks and did not rely on multiple IP platforms deployed throughout the home. With the delivery of rich multimedia services to both fixed and mobile devices, this is not the case today. The complexity of networks has increased tremendously, and service providers cannot succeed if this complexity is pushed onto the consumer.

DATA SHEET

Motorola NBBS Device Management Platform

	Deploy	Monitor	Resolve
Service	End-to-end provisioning	Correlation	Service awareness Application support
Network	Detection of devices and capabilities	Correlation	Scripting to automate complex tasks
Device	Automated installation	Application and device monitoring	Automated resolution Firmware management

Service providers are now delivering multiple services, often to multiple devices and perhaps even to multiple networks. These services have to be monitored and assured at the device, network, and service layers. The increased complexity of delivering robust services can no longer be successfully addressed by point products and now requires tools capable of spanning all layers. Service providers need the ability to deploy and monitor devices, networks, and services while resolving issues and delivering service-aware application support.

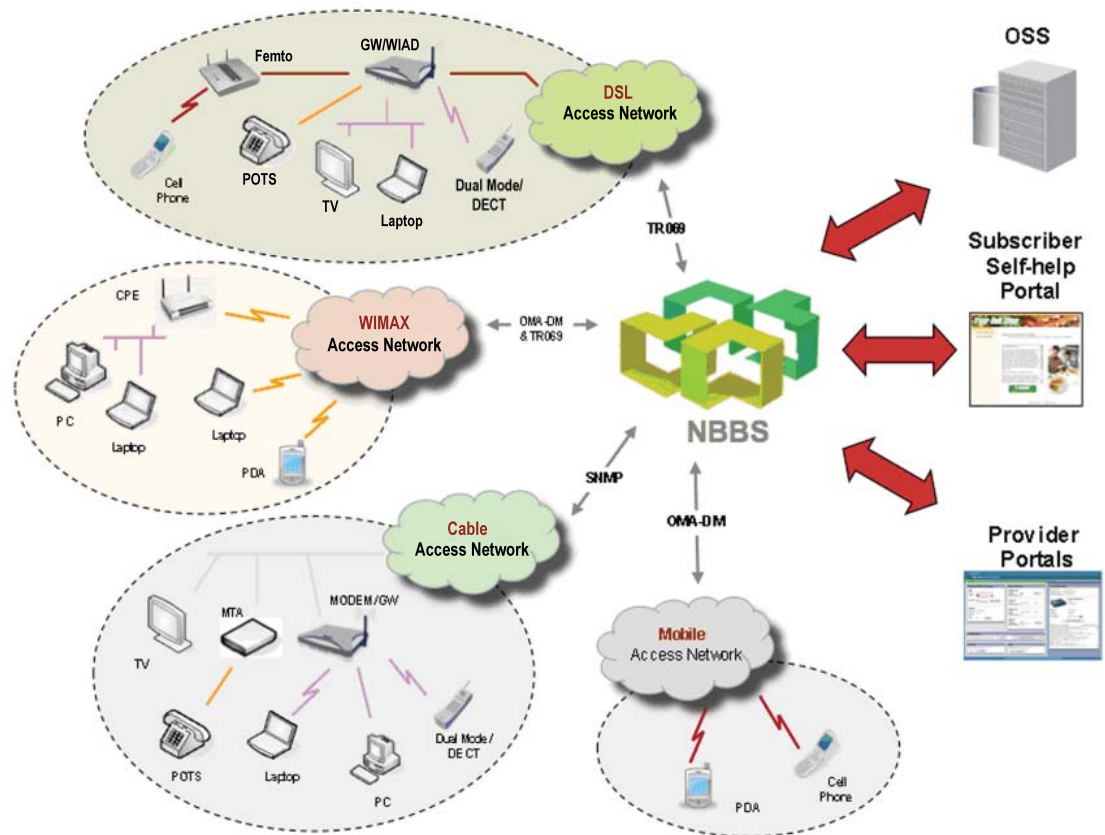
The screenshot displays the Motorola NBBS Customer Support portal. The main content area shows details for a WIMAX CPE device (Motorola CPEI750). Key information includes: Manufacture: Motorola, Model: CPEI750, IP Address: 134.54.23.76, Mac Address: 00:17:f2:c8:d3:bd, and DNS Server: 109.31.32.12. The firmware version is 3.3.2, with a warning to update to 3.5 recommended. A progress bar indicates the firmware update is 20% complete. The interface also features a 'Details' tab, a 'Log' tab, and a 'Commands' section with 'Reboot Device' and 'Factory Reset' buttons. A list of events shows 'Firmware Updated on CPE' on 2008-04-25 03:12, 'Customer Support Call' on 2008-04-25 10:12, 'Can Not Contact VoIP Server' on 2008-04-07 20:23, and 'Provision VoIP Device' on 2008-04-05 20:23. A graph on the right shows usage or performance metrics over time, with a peak around 4/6/08 and a dip around 4/20/08. The interface includes a 'Look up New Customer' search bar and a 'Customer' profile for Joe Customer (ID: 32453423, Phone: 785-555-1212, Last support call: 2 days ago). The 'Actions' section includes 'Run Install Checklist...', 'Start Real-time Monitor...', and 'Add to Long-term Monitor'.

NBBS includes a robust server support portal for centrally monitoring service assurance.

Value-added management of subscriber services can differentiate one provider from the next. NBBS allows providers to deploy and monitor services and automatically resolve issues so that the complexity of delivering the service can be masked from the consumer. Thus the service can be provided with less effort, resulting in increased brand loyalty and increased average revenue per user (ARPU).

NBBS accelerates device and service deployment, decreasing the time to market and facilitating the introduction of new, revenue-generating services. It is a software solution that allows service providers to monitor, maintain, and troubleshoot subscriber equipment and enable enhanced service delivery so that service providers can:

- Reduce the cost of deploying and supporting subscriber devices, networks, and services
- Differentiate services through improved customer care
- Accelerate the delivery of new media services
- Make better operational decisions through access to enhanced usage and performance information



NBBS enables unified management of IP services and provides a single management system to control and manage all subscriber devices and services across DSL, WiMAX, Cable, and mobile access networks. It enables a unified view of all devices presented to OSS infrastructure to enable seamless management, and allows network operators to provide subscriber self-help portals that present a unified view of all customer equipment. Network operators can also benefit from provider portals that offer help desk staff a unified view into all customer equipment to enable service-aware management.

Automating Service Initiation

The delivery of content across TV, mobile, and broadband Internet services creates opportunities for a new kind of customer experience and can provide a competitive advantage to service providers. However, it is not enough to just enable a seamless experience that spans across multiple domains. Personalization of the experience is critical to establishing customer loyalty and providing a highly targeted services and advertising environment that can generate the bottom line results needed for a sustainable long term business model. Coordinating the specifics about services, subscribers, devices, networks, content partners, and advertisers requires context-sensitive intelligence as part of the converged content management solution. Motorola's Communications Convergence Engine (CCE) is the only proven and scalable solution for adding such capability to a service provider's service delivery infrastructure.

Inventory management is also simplified because NBBS takes the guesswork out of shipping the correct device for the service. Providers no longer need to order multiple service configurations for the varying needs of their customers. NBBS downloads custom configurations according to each subscriber's unique requirements upon service initiation, enabling the efficiencies of using common, off-the-shelf hardware while delivering mass customization to subscribers.

Implementing Protocol-Agnostic Device Management

NBBS is built on industry-standard protocols such as SOAP, LDAP, RADIUS, HTTP XML, TR-069, OMA DM, Telnet, and SNMP, providing maximum flexibility for the provider. For example, mobile operators can rely on OMA DM for WiMAX gateways and handsets as well as 3G handsets, cable operators can use SNMP for cable modems and cable set-top monitoring, carriers can use TR-069 for managing DSL gateways, WiMAX gateways, VoIP and IP video services, and network operators can use Telnet for managing legacy CPE, firewalls, network security, and devices. NBBS is a protocol engine that enables the delivery and management of IP services, and it includes the intelligence needed to collect and interpret events and understand the relationships between devices, home networks, and services.

DATA SHEET

Motorola NBBS Device Management Platform

Improving Customer Service, Reducing Operational Costs

Service providers can hide the complexity of delivering services by deploying NBBS. For example, a carrier deploying triple-play services via fiber was averaging three truck rolls for each service activation: one to bring fiber to the premises, one to configure gateways, and one to resolve problems with a customer's home network. By deploying NBBS, a carrier can average a single truck roll for the delivery of triple play Fiber to the Premises (FTTP) services. Service activation is transparent to the customer, and a carrier can accelerate time-to-revenue for new services while improving customer service levels and offering innovative IP services that attract new subscribers.

NBBS offers an extensible and customizable API for fast integration with minimal changes to existing OSS applications. It provides multi-vendor CPE support, allowing effective management of third-party devices. NBBS provides powerful device management for simplified, reliable management of all configurable devices at the network edge, and sophisticated policy management allows service providers to benefit from consistent policy implementation across diverse CPE platforms. NBBS has a field-proven scalable and secure architecture, and can scale from supporting a few users to millions of devices using highly secure administration.

NBBS includes business logic and device abstraction, and it embodies expert device knowledge. It also uses standard device interfaces, such as command line interface (CLI) and HTTP-based Web interfaces, for the ultimate in access to a range of devices for service provisioning, management, and subscriber support. This broad support for multiple interfaces allows NBBS to manage the widest variety of third-party fixed or mobile IP-enabled devices. Using this approach, NBBS can perform the following functions:

- Individual or en masse updates to device software and configurations
- Configuration and management of advanced services such as virtual private networks (VPNs), gaming, security, VoIP, and IPTV
- Real-time CPE monitoring and troubleshooting
- Customer self-service provisioning and troubleshooting
- Automated business logic, including provisioning, monitoring, and analysis

NBBS offers features that set it apart from other service and device management platforms, such as:

- Multi-vendor network support, providing seamless integration into existing OSS systems, including provisioning, billing, and customer support applications
- Multi-vendor CPE support, allowing management of third-party devices
- Powerful device management for simplified, reliable management of all configurable devices at the network edge
- Sophisticated policy management for consistent policy implementation across different CPE
- A field-proven scalable and secure architecture that can scale from supporting a few devices to supporting millions of devices using highly secure administration

The screenshot displays the Motorola NBBS Support Application interface. The main title is "Motorola NBBS Support Application". The navigation bar includes "Summary", "Diagnostics", and "Gateway". The user is logged in as "barett@motorola.com". The interface shows the configuration for a "Motorola Netopia 3347NWG Gateway".

Account Information

- Contact Name:
- DSL Line #: BCA-3347
- Customer e-mail: bca-user2
- Registered Name: bca-user1

7347-84

- Specs
- Tech notes

WAN Summary

WAN IP	10.1.150.194
Netmask	0.0.0.0
Status	Up
Type	DSL
NAT	on
Admin Restrictions	admin-disabled

LAN Summary

LAN Address	192.168.1.254
Netmask	255.255.255.0
DHCP Server	on
Domain Name	netopia.com
DNS Servers	10.1.4.10 10.1.4.32
Ethernet	on
Wireless	on

Firmware

Latest Available Version:

Upgrade

Configurations

0(7.7.1r1) 2008-03-21_15-08-59_P Restore Save Current Config Del

System Log (Expand)

```
Log
3/21/08 10:37:00 PM
L3 LHD: Interface N/A, State online
3/21/08 10:37:04 PM
L3 LHD: IP 192.168.1.22, MAC 00-13-ce-5e-64-00
3/21/08 10:37:04 PM
L3 LHD: Interface N/A, State suspect
3/21/08 10:37:04 PM
L3 LHD: IP 192.168.1.22, MAC 00-13-ce-5e-64-00
3/21/08 10:37:04 PM
L3 LHD: Interface N/A, State online
3/21/08 10:39:24 PM
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With NBBS, service providers can centrally provision, monitor, and manage devices located at the customer premises.

Extending Support from the Gateway to the Desktop

Motorola's flexible and scalable service assurance solutions provide reliable delivery and superior performance for diverse IP services from the gateway to the desktop and throughout the home. Designed for proactive management and support, Motorola equips the service provider with the right tools to efficiently and successfully provision, maintain, and support broadband services that reduce management costs, improve operating efficiencies, and exceed subscriber expectations. Benefits of Motorola service assurance solutions also include:

- Simplicity of set-up and installation
- Support for multiple devices across different access networks
- Service integration into multiple OSS applications
- The ability to deliver reliable, high-quality services over time
- Security and permission-based access to remote PCs, devices, and platforms
- The ability to drive down the cost of assuring consistent and reliable service delivery
- The opportunity to increase user loyalty and proactively assure reliable end-to-end delivery of diverse services

Service assurance solutions from Motorola support seamless mobility and the delivery of services to the home, throughout the community, and on the road. Motorola also provides the professional service expertise to help organizations manage the end-to-end delivery of services to the connected home across different networks and devices.

Network operators can rely on Motorola's service assurance solutions to build subscriber loyalty levels, increase broadband service revenues, and reduce operational and support costs. NBBS operational efficiencies and cost savings can be extended from the gateway to the subscriber's desktop with eCare, Motorola's Web-based on-demand remote support application. eCare allows technical support staff to reach out over the Web and resolve customers' problems through a browser-based interface to the subscriber's desktop. Powerful, interactive, permission-based features combined with robust security and real-time reporting deliver a customer care solution that improves support center efficiencies and creates happy customers.

Together with NBBS, eCare complements existing customer support strategies and eliminates the ambiguity and frustration often experienced by help desks. NBBS enables support teams to see gateway configuration and status, while eCare enables knowledge and control of the desktop and connected devices. This unique level of visibility is only available from Motorola.

Both NBBS and eCare are available as licensed software or hosted at Motorola's world-class hosting facilities. To reduce time to market and up-front capital expenditures, service providers can select a hosted solution, quickly taking advantage of the features and functionality of NBBS and eCare without the need to purchase or maintain additional capital equipment. For large-scale implementations, NBBS and eCare are available as licensed software that can be custom branded and integrated with existing systems by Motorola's Professional Services Organization (PSO).

Delivering Fixed Mobile Convergence

NBBS is ideal for any operator implementing fixed mobile convergence (FMC) strategies. It is a key element for media mobility and enables device management over diverse access technologies, including DSL, WiMAX, Cable, and RAN technologies. Some of the latest carrier services optimized by NBBS include femtocells, VoIP, WiMAX, IPTV, Video On Demand (VOD), and gaming.

Delivering Media Mobility

The NBBS device management system helps Motorola deliver fully integrated and customizable media mobility solutions for the delivery of personalized and rich media experiences to the consumer. It enables service providers to efficiently and cost-effectively deliver and manage revenue-generating IP applications and solutions.



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