Data Sheet

Policy Controller/PCRF

The market leading Bridgewater® Policy Controller is a robust and flexible policy server specifically designed to help mobile service providers address the burgeoning growth in mobile data services by managing network resources, applications, and the subscriber experience in real time. It is fully compliant with the Third Generation Partnership Project (3GPP) Release 7, 8 and 9 standards for the Policy and Charging Rules Function (PCRF), and employs a unique 'Smart Approach' to policy management that provides a wide range of network, subscriber and application policy capabilities.

The Policy Controller acts as a fully compliant 3GPP PCRF and can be deployed in both 3G UMTS/HSPA networks and the LTE Evolved Packet Core. It plays a vital role in the LTE network environment and is the central point for managing network infrastructure costs and enabling subscribers to enjoy a wide variety of services and a high quality experience. The Policy Controller can also be deployed in proprietary network architectures in conjunction with Deep Packet Inspection (DPI) solutions.

A Smart Approach to Policy Control

Bridgewater's Smart Approach to policy control encompasses network, subscriber and application policy, and addresses all aspects of the subscriber experience in real time. From the subscriber's perspective, this approach enables a personalized experience based on a variety of dynamic factors including user entitlements, real-time usage, location, and network resource availability.

The Policy Controller provides a common policy platform to enable broad control of the subscriber's mobile experience by creating and applying rules in real time that govern:

- Where and under what circumstances subscribers can access specific content and applications online
- How specific applications are delivered - regardless of who is using them
- The way in which network resources such as bandwidth are allocated to enable services

Bridgewater's Smart Approach greatly expands the capabilities of policy control when it matters most—while subscribers are actively using data services. It offers service providers four key tools to implement a wide range of adaptive policy controls:

Smart Clients: Introduced in June, 2009, this capability allows service providers to put policy control directly into the hands of subscribers using a convenient myPolicy client application for smartphones. This allows subscribers to manage their mobile data usage and prevent bill shock .

Smart Controls: Support for self-care portals and notifications that allow mobile service providers to provide timely and transparent communication to the subscriber. Subscribers can in turn send top-up and boost requests, change their service packages, get usage information, and set personalized roaming or usage limits. Smart Controls lead to increased personalization of services, which in turn reduces customer support costs, increases revenues through add-on services, and prevents bill shock.

Smart Apps: Moving one step beyond Smart Controls, Smart Apps provide finer granularity in the control of the user experience by enabling both service providers and subscribers to tailor policies based on the requirements of different applications such as video and music streaming, web browsing, or email. At the same time, Smart Apps also take into account real-time subscriber preferences, behaviors, and network conditions.

Smart Caps: A more flexible, real-time approach to bandwidth caps that allows service providers to apply precise controls to specific users based on individual behavior. A heavy bandwidth user who routinely exceeds fair usage levels is treated differently than a user who has inadvertently exceeded a bandwidth cap with a one-time movie download. Smart Caps improve ROI by removing the need for expensive upgrades to relieve congestion caused by heavy users. They also optimize the allocation of available bandwidth across subscribers, increasing fairness in network access, and improving the user experience.

Network Policy Control

The Policy Controller manages available network bandwidth resources adaptively and in real time during individual subscriber sessions, while enabling subscribers to get the most out of their mobile data experience:

- Fair usage and quota management control for monthly and flat-rate data plans

- Tiered services to increase customer loyalty and broaden appeal across multiple subscriber segments
- RAN congestion solution to manage simultaneous application sessions per RAN resource
- Proactive notifications and subscriber self-management to avoid mobile bill shock
- Real-time metering to support service model innovation – pre-paid, post-paid, casual user, and service extensions while roaming

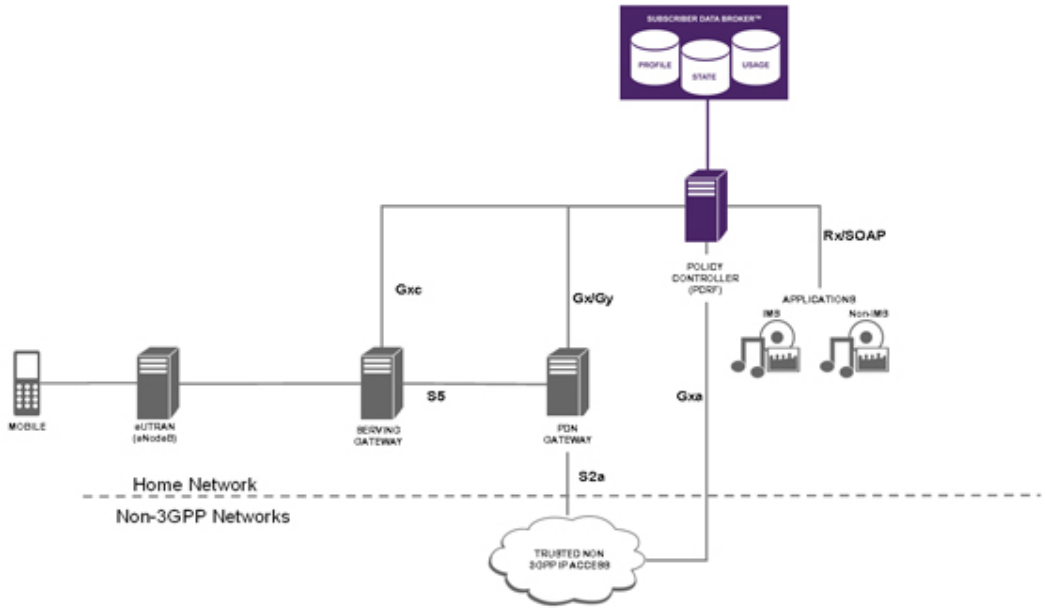
Why Choose the Bridgewater Policy Controller?

As the global market share leader in policy management with over 12 years of industry experience, Bridgewater offers Policy Controller, a rich policy platform that intelligently and proactively manages network resources, applications and subscribers in real-time to help service providers generate new revenues from personalized mobile applications.

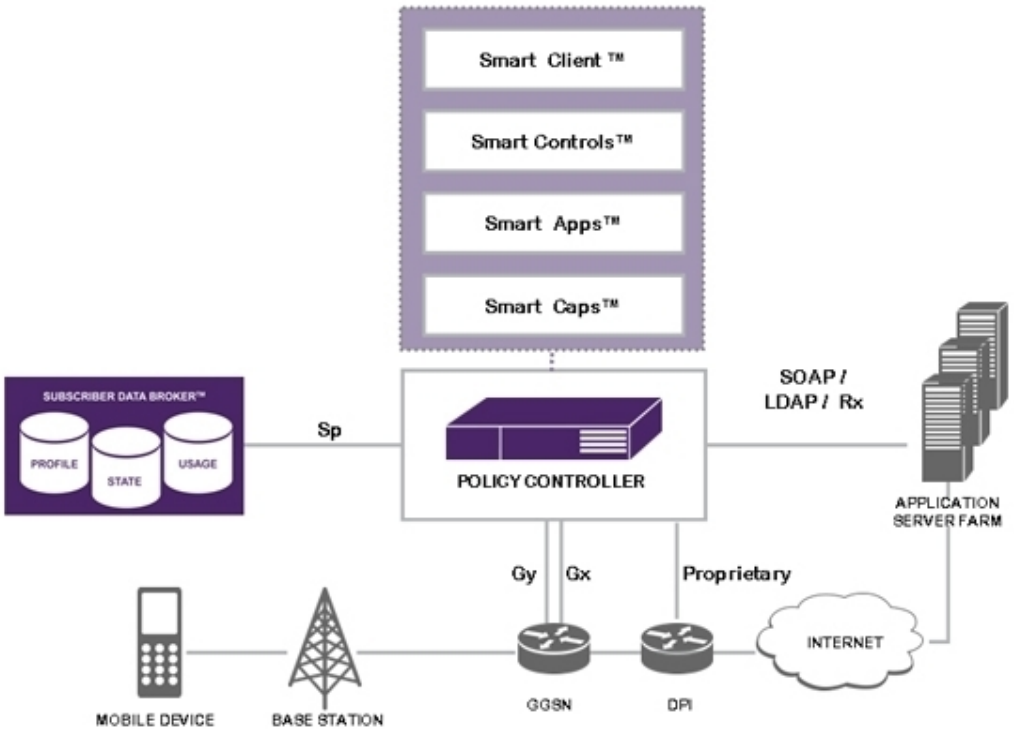
The Bridgewater Policy Controller is unique in the industry in leveraging multiple types of policy that work together to deliver a personalized mobile experience. With Bridgewater, service providers can take a holistic view of policy control, including subscriber policies, network policies, and application policies, to address all aspects of the subscriber experience.

Deployment Architectures

PCRF Deployment Architecture for LTE



PCRF Deployment Architecture for 3G



Features and Benefits

Flexible per session, per-subscriber, per-application policy controls - Efficiently control and optimize use of network resources based on multiple subscriber context-aware policies, such as service plan, roaming status, applications being used, and available network resources.

Adaptive policy controls to manage network bandwidth usage in-session - using dynamic subscriber and network context, limit bursting to assure quality of service (QoS) for all when bandwidth is scarce and allow users to burst for longer periods of time when bandwidth is widely available.

Centralized business rules engine – flexible, highly-configurable rules-based editor to add and modify policies governing subscriber data usage and application entitlements, enabling faster time to market for new services.

Real-time metering – implements standard 3GPP Gy interface to perform data usage metering within individual user sessions, which allows policy decisions to be applied in real time in response to specific user behaviour.

Dynamic mid-session modifications – provides immediate service response and instant control over bandwidth usage and enables modifications to be initiated by subscribers or customer service portals. Since the Policy Controller can manage data usage in real time on a per session, per subscriber basis, it minimizes operational costs associated with offline analysis of subscriber usage and provisioning of usage limits, and reduces calls to the customer care desk from dissatisfied customers.

Subscriber redirection – redirects user to a web portal based on pre-set usage thresholds, or other criteria, to reduce operating costs and increase customer satisfaction by providing a quick and efficient method of communicating with the customer.

Charging interfaces - generate triggers and events required for online rating and billing to reduce revenue leakage and improve billing accuracy.

Policy test tool – de-risks deployments with end-to-end testing capability, reduces training costs and enables risk-free configuration and deployment.

Service enablement – enables dynamic on-demand options to tap into new revenue opportunities, improve the overall subscriber experience, and drive up ARPU. Examples include: bandwidth boosts, tiered services, content-triggered QoS, casual user service models, prepaid metering, proactive notifications to subscribers on usage thresholds, and personalized subscriber usage limits.

Sophisticated subscriber data management option with Bridgewater's Subscriber Data Broker ™ provides a unified view of the subscriber including whether the subscriber is on the network, what device they are using, and if they are roaming. This allows service providers to set appropriate data usage controls when subscribers are roaming versus in the home network, based on subscriber service plans and current usage thresholds.

Carrier-grade scalability and performance – Bridgewater's products support more than 150 million subscribers and handle over 20 billion transactions per month for a single customer.

Standards-based architecture – fully compliant with 3GPP PCRF Release 7.0 and Release 8.0 standards, and compliant with the Policy Function as defined by the WiMAX Forum, supporting numerous network topologies and deployment methodologies.

Proven interoperability – broad range of network and application platforms from leading network equipment vendors: PDN Gateways, Serving Gateways, GGSNs, Deep Packet Inspection Devices, MMS Servers, PDSNs, Device Management, Brew Applications, ASN Gateways, WiMAX Home Agents, CDMA Home Agents.

Integrated Network Systems

The Policy Controller is available as a software solution or as a pre-integrated network system with Bridgewater certified performance guarantees. The integrated network system approach reduces initial deployment costs, accelerates time to market, and takes the guesswork out of adding additional systems as user transactions increase and the network requires additional capacity.

Pre-integrated on Sun's carrier-grade T5220 server, the Bridgewater Policy Controller network systems can be rapidly deployed in a wide range of service provider environments.

Bridgewater Policy Controller 1000 PCRF-compliant integrated network system for entry-level deployments	Netra T5220 Server Solaris 10 4-Core 1.2 GHz UltraSPARC T2 Processor 4 MB L2 Cache per Processor 16 GB (8x2 GB DIMMs) Low-Profile Memory 2x146 GB 10000 rpm SAS Disk Drive 1 DVD-RW Drive 2 AC or DC (1+1) Power Supply Units 4 x 10/100/1000 Ethernet Ports 2 USB 2.0 Ports 3 PCI-X Slots 4 PCIe Slots Integrated Lights Out Manager (ILOM)
Bridgewater Policy Controller 3000 PCRF-compliant integrated network system for mid- to large-scale deployments.	Netra T5220 Server Solaris 10 8-Core 1.2 GHz UltraSPARC T2 Processor 4 MB L2 Cache per Procesor 64 GB (16 x 4 GB FBDIMMs) Low-Profile Memory 2 x 146 GB 10000 rpm SAS Disk Drive 1 DVD-RW Drive 2 AC or DC (1+1) Power Supply Units 4 x 10/100/1000 Ethernet Ports 2 USB 2.0 Ports 2 PCI-X Slots 4 PCIe Slots Integrated Lights Out Manager (ILOM)

About Bridgewater Systems
Bridgewater Systems, the mobile personalization company, enables service providers to efficiently manage and profit from mobile data services, content and commerce. The company's market leading mobile personalization portfolio provides a real-time, unified view of

subscribers including entitlements, devices, networks, billing profiles, preferences and context. Anchored by Bridgewaters Subscriber Data Broker™, the portfolio of carrier-grade and standards-based products includes the Bridgewater® Service Controller (AAA), the Bridgewater® Policy Controller (PCRF) and the Bridgewater® Home Subscriber Server (HSS). More than 150 leading service providers including America Movil, Bell Canada, Clearwire, Cox, Hutchison Telecom, Iusacell, Scartel, SmarTone-Vodafone, Sprint, Tata Teleservices, Tatung, Telmex, Telstra, and Verizon Wireless use Bridgewater's solutions to rapidly deliver innovative mobile services to over 150 million subscribers. For more information, visit us at www.bridgewatersystems.com.

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