

INTELLIGENT SUBSCRIBER-CENTRIC MANAGEMENT WITH THE NETWORK POLICY CONTROLLER

INTRODUCTION

Service Providers can increase the total value of their networks by ensuring their capability to support new technologies with intelligent business models. This is possible with policy controls that can be applied on a per-subscriber basis, allowing a more nuanced and responsive solution to resource provisioning and service challenges.

Fixed-mobile convergence is on the rise, and mobile Service Providers are increasingly looking to IP-based infrastructures: the ability to intelligently manage different types of traffic will be central to profitability and meeting subscriber demands. With intelligent subscriber-centric policy management, different usage-linked pricing plans can be developed, and with the insight on data costs per user and application, ROI can be accurately measured and cost reductions found.

This capability, enabled by the Network Policy Controller, allows subscribers to understand the parameters and limitations of the services they are purchasing and to make changes according to their needs. Few technological investments can make such a large impact on a Service Provider's business and subscribers.

EXTEND DPI CAPABILITIES WITH PER-SUBSCRIBER POLICY CONTROL

With the Bridgewater Systems™ Network Policy Controller, Service Providers can extend the control capabilities provided by deep packet inspection (DPI) network elements with personalized services and control. Offering services on a per-subscriber basis allows Service Providers to provide a more competitive value proposition, create new revenue streams, and raise average margin per user (AMPU) while maintaining centralized and granular control of their networks.

ROLE OF DPI

Bandwidth use and the proliferation of real-time low-latency services (particularly video), have driven Service Providers to protect their networks with traffic monitoring and shaping capabilities. DPI network elements have been one part of the solution, providing the ability to collect information and enforce policy on a network-wide basis. These network appliances can process a remarkable amount of information in real time and are good at classifying, controlling, and tracking traffic according to pre-defined general rules. They even provide application awareness on the network by analyzing the content of IP packet

PERSONALIZED SUBSCRIBER SERVICES INCREASE THE VALUE OF YOUR NETWORK

- > Offer high-ROI, low-latency services such as video on demand, gaming, and video telephoning.
- > Respond to subscribers' desire for specialized service packages while maintaining service integrity through mid-session policy changes.
- > Support new services and applications with subscriber-focused business and service models to ensure both ROI and QoS.
- > Target market segments more accurately with services that meet their demands.

headers and payload, allowing Service Providers insight regarding how subscribers are using the network.

However, with respect to enforcement of what and when users access various services, DPI network elements remain rudimentary, offering simple on/off, yes/no control of traffic, applications, and users. As a result, DPI network elements are most often employed to address network-level controls (e.g., standard limiting of P2P traffic for all subscribers), and alone are insufficient for shaping traffic to meet individual requirements (e.g., enterprise, consumer, and on-demand).

SUBSCRIBER-CENTRIC POLICY MANAGEMENT

The Network Policy Controller from Bridgewater Systems enables Service Providers to meet the challenge of offering subscriber-centric policy control. This end-to-end solution leverages the awareness and control provided by DPI network elements to create new opportunities to manage the performance, reliability, and profitability of the network. The result is an intelligent network, capable of new levels of service offering and responsiveness for applications and individual subscribers.

By using the Network Policy Controller, Service Providers run their business and services based on business objectives and not on the technology employed. Extensible and sophisticated business rules can be applied and monitored by the Network Policy Controller.

Service Providers can not only set multivariate conditions and thresholds that require action, but also define how the network responds when the conditions are met or thresholds reached. In contrast, the DPI alone would be confined to one rule for all users, either blocking or redirecting to a fixed place. The flexibility offered by the Network Policy Controller ensures that traffic and usage can be shaped on a per-subscriber basis, allowing the operator to introduce well-targeted and differentiated offerings.

DPIs alone cannot match the flexibility and response of a full Subscriber-Centric Management solution. As services and application offerings become more complex and technology advances, it becomes essential for the network to be able to react within the context of subscriber activity. Users could then have the capability to opt in or out of services based on their need at a specified point in time.

PERSONALIZED SERVICES IN ACTION

Mid-session service change

Policies controlled by typical network elements are assigned at session start and last for the duration of that session. Alternatively, Service Providers using the Network Policy Controller can monitor and detect in-session activity and communicate new policies for enforcement as required. The DPI network element can then render a new policy down to the subscriber. The result is the capability to offer on-demand service upgrades, making the subscriber experience much more responsive to individual needs and preferences.

Terms of service enforcement

Although flat-rate service is a popular offer, there is a danger that a few users will abuse the service, resulting in major network bottlenecks and slow-downs. The Network Policy Controller can detect this abuse on a per-subscriber basis and effect the appropriate policy on a per-subscriber basis, including slowing or blocking connectivity or redirecting the subscriber to a portal. The portal could include a “you are about to breach your contract” message, allowing the users to either stop the activity or upgrade their service. The user response is then sent to the Bridgewater Systems solution, which sends a new policy to the DPI to limit the user activity according to the previous contract or enable a new level of service, with billing information sent to the network accounting systems.

Traffic priority according to subscriber request

Service Providers can offer specialized paid services that allow subscribers to choose special traffic treatment, such as blocking or prioritizing packets from specific applications:

- > **Billable QoS:** Subscribers can choose to give priority to applications with greater sensitivity to the timing and reliability of packet delivery (such as video on demand), ensuring fewer delays and dropped packets resulting in billable QoS.
- > **Parental Controls:** A Service Provider can offer parental controls that can be activated or deactivated by individual subscribers to block access to material unsuitable for children, such as P2P file-sharing applications to prevent illegal downloading or blocking access to gaming during specific times of day.
- > **Service Packaging:** Subscribers running multiple family computers on a single network connection can choose a service that prevents any one application from consuming more than 50% of the available bandwidth at any time.

BRIDGEWATER SYSTEMS NETWORK POLICY CONTROLLER

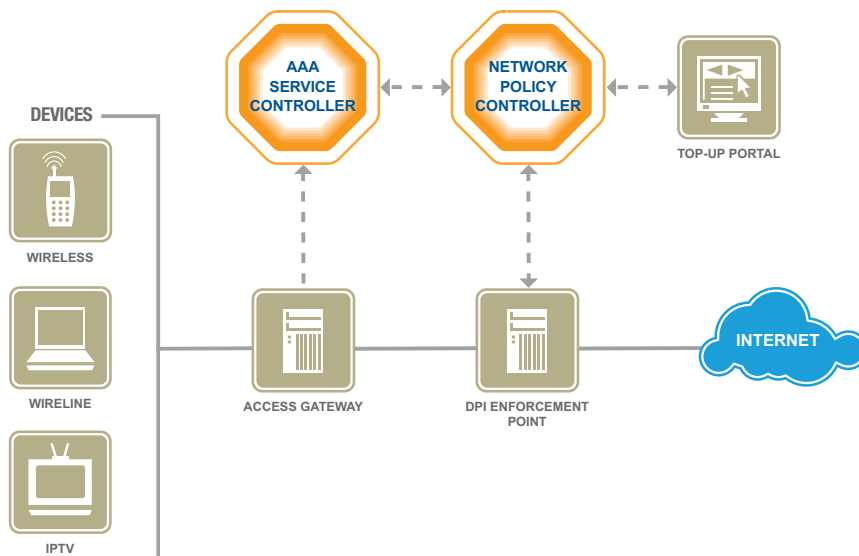
The Bridgewater Systems Network Policy Controller enables real-time control of network resources, ensuring a positive subscriber experience while allowing Service Providers to control and manage network resource usage in real time. The Network Policy Controller allows fixed and mobile Service Providers to offer a high-quality subscriber experience, based on a combination of static, dynamic, and historical subscriber entitlements to control network resources, while maximizing revenues with new services enabled through dynamic mid-session modifications.

With the Network Policy Controller, Service Providers can:

- > Efficiently control and optimize use of their network resources on a per-subscriber, per-session, or per-application basis.
- > Push decisions to policy enforcement points to enforce fair-use policies and apply quality of service (QoS) controls to precious network resources, eliminating bandwidth abuse.
- > Offer bandwidth-on-demand service upgrades in real time to capitalize on incremental revenue opportunities.
- > Differentiate content services with QoS guarantees or prioritization.
- > Reduce operating costs by enabling deployment of self-care portals for subscribers and customer service representatives.
- > Improve the subscriber experience by delivering instant activation for service needs — including mid-session modifications to support dynamic profile changes and self-care options.

ABOUT BRIDGEWATER SYSTEMS

Bridgewater Systems develops subscriber-centric service control solutions, including access control and policy management software, for fixed, mobile, and converged networks. Using Bridgewater solutions, global Service Providers can offer personalized services and experiences to their subscribers by maintaining a real-time policy that controls how subscribers interact with networks, services, and their devices. Vendor-neutral and access network agnostic, Bridgewater's carrier-class solutions help global Service Providers launch new services faster, target them more accurately, and maximize profits by creating a decision point that brings dynamic subscriber context to controlling and merchandizing subscriber interaction with IP-based services. More than 100 leading Service Providers around the globe, including Verizon Wireless, Sprint Nextel, Bell Mobility, and SmarTone-Vodafone, trust Bridgewater's technology to help them deliver world-class services. www.bridgewater.com



The Bridgewater Systems Network Policy Controller connects with DPI network elements to render mid-session policy changes.

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