

Use Case

Radio Access Network Congestion

Service providers are facing Radio Access Network (RAN) congestion challenges as a result of the explosive growth in mobile data traffic. This is being driven by increasing 3G penetration, widespread adoption of new smart devices, and increasing use of bandwidth intensive applications. In many urban centers, it is estimated that 80% of network traffic is managed by only 10% of cell sites.

This has resulted in service degradation for mobile subscribers attached to congested cell sites and has created challenges in implementing fair usage policies to manage network congestion in the core network and in the RAN.

Challenge

Service providers have a range of tools at their disposal to monitor and analyze individual cell site conditions including Radio Probes and Usage Analyzers. However, they currently have limited means of correlating congestion at individual cell sites to the subscribers currently attached to those sites and the entitlements of those subscribers. As a result, they cannot easily prioritize network resources for certain subscriber segments when a cell site is congested in real time based on their service plans, applications being used, or previous usage behaviours and offer the service level guarantees subscribers expect.

Bridgewater Solution Overview

Bridgewater offers a unique policy-enabled RAN Congestion solution that addresses these challenges and allows service providers to prioritize network resource usage on a per cell site, per subscriber basis.

Featuring the Bridgewater® Policy Controller and a new RAN congestion module, the solution:

- **Interacts directly with probes and analyzers** from the radio network to receive congestion information.
- **Tracks subscribers based on their attached cell site** and respective congestion level along with corresponding subscriber profile, state and usage information within the Bridgewater Policy Controller real-time session database.
- **Creates real-time policy decisions** by correlating information on congested cell sites, attached subscribers and their corresponding entitlements.
- **Enables real-time control of network resource consumption** by pushing decisions to the policy control enforcement point in the network (i.e. GGSN).

Operator Benefits

Bridgewater's RAN Congestion solution enables service providers to:

- **Proactively manage congestion on a per subscriber, per application, per cell site basis in real-time – while supporting quota management controls across the network.**
- **Deliver a personalized mobile experience that is tied to subscriber entitlements and meets service level expectations.**
- **Set flexible policy rules to manage network resource usage based on a wide range of parameters – subscribers attached to a cell site, service plan, previous behaviour, dynamic cell site conditions.**
- **Guarantee the subscriber experience for key services, applications, and customer types and prioritize these in real time based on dynamic cell site conditions.**
- **Differentiate service tiers and meet corporate customer Service Level Agreements for service quality.**
- **Provide transparent notifications in real time to subscribers regarding service adjustments and current network conditions.**
- **Target subscriber segment for dynamic upsell opportunities – bandwidth boost, service tier upgrade, alternate access options such as Wi-Fi.**

"SmarTone-Vodafone's successful deployment with Bridgewater has allowed us to deliver an unbeatable customer experience including personalized service tiers, guaranteed service levels, and network policies that ensure fair usage and reduce network congestion." - Stephen Chau, Chief Technology Officer, SmarTone-Vodafone

Subscriber Benefits

The solution has several benefits for the subscriber including:

- **Personalized mobile experience** – service plans with guaranteed service levels.
 - **No unnecessary service disruption** – Allowed to burst and experience higher quality of service during times of non-congestion.
 - **More choices** – opportunity to upgrade services in real time rather than experience poor quality of service when the network is congested.
- Improved transparency** – on service levels in real time.

The Bridgewater Advantage

- **Unique, adaptive approach to policy control** which spans client, application, network and now RAN congestion management.
 - **Dynamic view of subscribers and cell site conditions** – Leverages contextual view of subscribers including attachment and location information, entitlements and service profiles - and dynamic cell conditions to drive intelligent decisions that prioritize specific subscriber segments in real time.
 - **Vendor agnostic** – ability to interoperate with any probe vendor, 3G or 4G policy enforcement point in the network.
 - **Standards compliant solution** – 3GPP PCRF Release 7,8 and 9 compliance for ease of interoperability and migration to 4G.
 - **Extends the value policy investment beyond network control** to address real world challenges and allow operators to capitalize on the exponential growth in mobile data traffic – service innovation, fair usage control, bill shock and now RAN congestion.
- Multi-access pedigree** – can be deployed across multiple network types.

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 Bridgewater's 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.bridgewater.com.

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