

# NORWEGIAN TELCO LEADS THE WAY TO FLEXIBLE BROADBAND SERVICES

Juniper Networks technology enables Telenor to improve broadband services profitability and customize services to the needs of the individual subscriber

Telenor



#### Customer:

Telenor  
www.telenor.com

#### Challenge:

- Make efficient use of bandwidth capacity
- Reduce infrastructure costs
- Increase revenue potential
- Retain customers

#### Action:

Deployment of Juniper Networks E-series edge routing platforms with SDX-300 Service Deployment System

#### Advantage:

- Reduced OPEX
- Added revenue streams
- Assured user experience

Currently nearly 100% of broadband access is provided by carriers on a flat rate basis despite the fact that this is not the most efficient or economical access model for either the carrier or the customer. Flat rate, always-on access seems like an ideal scenario for the user. However, in reality, a small percentage of heavy users consume up to 80% of the network resources. This suggests that normal users are effectively subsidizing the heavy users as they pay the same flat rate fee. By introducing billing structures based on actual network usage, the fee for always-on connectivity for normal users can be reduced whereas the heavy users will pay a premium for their connectivity.

It was exactly this issue that Norwegian Telco Telenor was facing as its broadband subscriber base increased significantly during 2002.

A limited number of very heavy network users and their associated traffic, primarily peer-to-peer, were causing Telenor headaches by consuming the bulk of the network capacity. Provisioning extra bandwidth to support peak traffic across all users seemed to be the only answer. However, if the problem of the heavy users could be resolved, provisioning extra bandwidth was not really necessary. In fact, Telenor would be left with wasted bandwidth provisioned to the average subscriber and the cost of this wasted bandwidth was borne mainly by Telenor. Passing costs on to the consumer was not an option due to competitive market conditions. Furthermore, current markets demand a more significant rate of return on the services offered while holding down capital expenditures and operating expenses.

The Juniper Networks Solution Juniper Networks Service Deployment System (SDX-300) is designed to enable service providers to rapidly create and deploy a raft of new revenue-generating services, individualize and enhance their subscribers' experience, and at the same time retain full control of their underlying networks. This highly scalable, flexible intelligent serviceware offering includes service creation, service activation, subscriber management and accounting capabilities.

The SDX-300 enables service delivery to hundreds of thousands of subscribers over a variety of broadband access technologies - such as DSL, cable, Ethernet and Public Wireless LAN. Working with Juniper Networks E-series Edge Routers, the SDX-300 lets users activate service offerings on an as-needed basis, automatically provisions the network to deliver those services, and accounts for service usage on an individual subscriber basis.

Telenor quickly concluded that the solution was to create service offerings that combine appealing content with more efficient use of bandwidth, and improvements in quality of service, as well as network functions like security, traffic prioritization, and content filtering. This approach would allow Telenor to offer a much wider range of services and billing models and would generate new and more consistent revenue streams.

Telenor recently deployed a solution that challenges the limitations of the flat rate plan and presents a better business model for both the consumer and carrier alike. This solution offered by Juniper Networks includes dynamic bandwidth allocation according to customer demand that supports new services that can in turn be provided on demand. As of the beginning of 2003, Telenor's customers have a choice: they can sign up for the higher flat rate monthly fee or they can choose a new broadband service at a lower monthly fee and dynamically upgrade their service as needed.

In partnership with Siemens and Juniper Networks, Telenor deployed the Juniper Networks Service Deployment System (SDX-300) (see insert for more information) in its nationwide IP network. The deployment means that Telenor can now capture, rate, and manage customer accounts and usage events in real time. Additionally, the Service Deployment System allows Telenor to increase service revenues by enabling pay-as-you-go and pay-per-view service options, and strengthen customer relationships to reduce churn as well as attract new consumers with popular content and provider brand names. The SDX-300 also empowers end-users to have direct control over their service profiles.

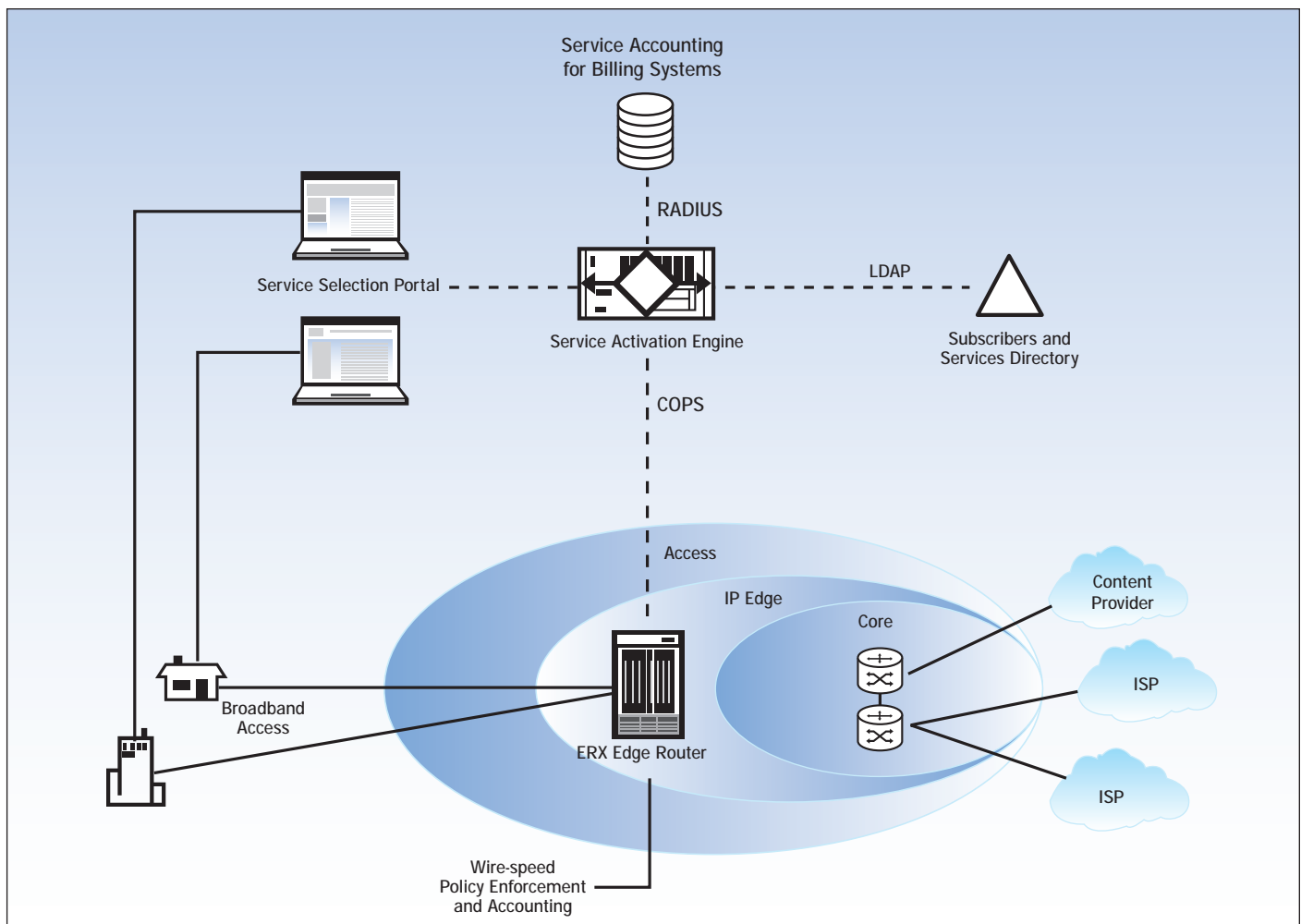
Berit Svendsen, CTO at Telenor, says, "With the Juniper Networks E-series and the SDX Service Deployment System, we have been able to transform our broadband service offering from a flat fee structure to a pay-per-usage model through dynamic bandwidth allocation. The Juniper Networks technology enables us to offer our customers more flexibility in the type of services they require, while

keeping our operational costs to a minimum. This has resulted not only in an increase in our total broadband subscriber base, but, more significantly, has increased the average service revenues per subscriber."

By merging the SDX-300 with previously installed Juniper Networks E-series edge routers, the upgraded system enables Telenor to tailor broadband services more closely to the specific needs of each subscriber and according to the economics of its own network. Furthermore, the upgrade provides improved network quality of service (QoS), traffic shaping, prioritization, and dynamic bandwidth allocation. These new features enable Telenor to offer flexible service levels to its broadband customers, which represent considerable OPEX savings along with increased revenues from new services. Telenor no longer wastes bandwidth with a one-size-fits-all, flat rate approach, but efficiently allocates bandwidth for more profit.

Telenor is undergoing a multi-phase deployment of services with the new system. Once the deployment is complete, the individual subscriber will activate service offerings on an as-needed basis. The system automatically provisions the network to deliver those services, and accounts for service usage on an individual subscriber basis. In the first stage of the deployment, Telenor is using the new system to implement service thresholds in order to control its customers' "fair use policy." Upon reaching the pre-set threshold, customers are automatically notified and through a Service Selection Portal (SSP) they may choose to either upgrade to a superior service, buy a prepaid Gigabyte package or use "free volume night-surf" service. This model has proven to be extremely successful for Telenor and has resulted in more predictable network behavior, reduced OPEX, and increased revenues.

## Schematic Overview of Service Deployment System



The Service Selection Portal (SSP) and Service Deployment System (SDX-300) enable the Telenor broadband subscribers to access and activate services using a Web-based portal without requiring special client software. The actual Web page, or portal page, presented to the subscriber is dynamically generated from information stored in the subscriber profile. ISP services behave just like normal services in that they apply policies that affect a user's network traffic when activated, and remove those policies when deactivated. When a user activates an ISP subscription, he is granted an IP address. Accordingly, the portal presents the subscriber with available service options, such as differentiated class-of-service Internet access or dynamic selection of value-added content. Subscribers are offered the freedom to dynamically alter their services without having to log out and log back in as they would in a RADIUS-only environment. Multiple services may also be simultaneously activated by a subscriber while being billed separately.

In addition to primary broadband access services, Telenor now has the capability to construct value-added services from a library of service building blocks (e.g., filtering, rate limiting,

traffic prioritization and protocol routing) that can be applied at wire speed. Additional services that Telenor can offer through the SDX and the Service Selection Portal include tiered VPN access, bandwidth on demand, gaming and multimedia services, video chat, E-learning services, premium ASP services, content filtering, video-on-demand, IP TV, pay-per-view audio and video, and integrated voice and data.

The result is that 75% of new Telenor broadband subscribers choose services based on the new model and in fact almost 50% of the 'heavy' users choose to upgrade their services upon reaching the threshold. With the Juniper Networks Service Deployment System and E-series Edge Routers in place, Telenor is more efficiently allocating its bandwidth resources, thereby delivering assured user experiences, and generating more revenue while keeping its operational expenditures to a minimum.



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