DATA SHEET

Arbor Ellacoya e100

UNMATCHED SCALE AND INTELLIGENCE IN A BROADBAND SERVICE OPTIMIZATION PLATFORM

The Arbor Networks® Ellacoya e100 ("e100") is a carrier-class 20 Gbps platform for broadband service optimization that supports up to 500,000 subscribers. The e100 platform enables service providers to dramatically increase the return on their network investment by managing traffic at both the subscriber and application level. Based on deep packet inspection (DPI) technology, the e100 also enables carriers to identify and manage each packet of network traffic—by subscriber and application—in order to prioritize network activity, enforce policies and develop new service plans.

By combining intelligent hardware with embedded software, the e100 provides visibility and control needed to achieve wire-speed traffic awareness, bandwidth management and unparalleled service control in broadband networks. The e100 platform delivers the highest levels of subscriber density, throughput, service flexibility and carrier-class reliability through its modular chassis design.

Key Features and Benefits

Scalable, Carrier-class Design
Handles the traffic and demands of today's largest broadband networks, scales to 20 Gbps and 500,000 subscribers.

Deep Packet Inspection (DPI) Technology
Leverages intelligent DPI technology to detect application signatures of any length, anywhere in the packet payload, across packet fragments.

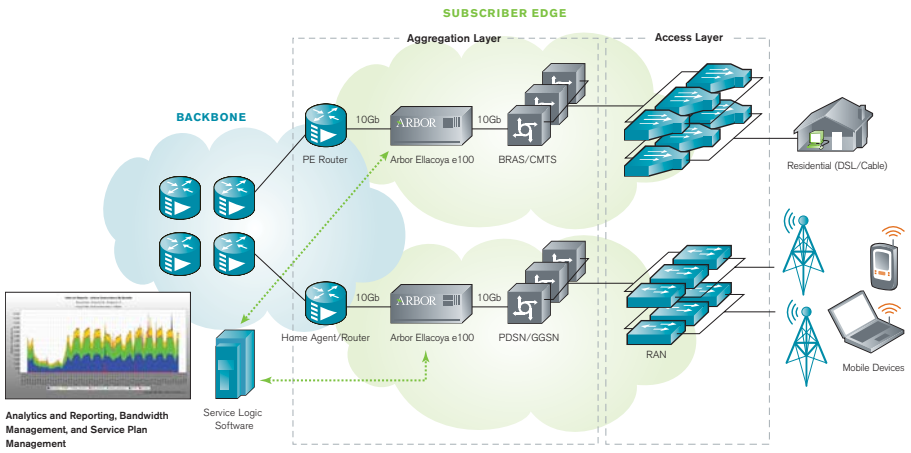
Application Integration
Supports an integrated suite of software options that enable more effective analytics and reporting, bandwidth management, service plan management and quota management.

Flexible API for Back-Office Integration
Enables back-office systems to provision subscribers, manage quotas and collect detailed usage information.

Centralized Management and Reporting
Provides a centralized approach to network management and reporting, even when hundreds of platforms are deployed.

Deeper into the Network for Total Service Optimization

With its full 20 Gbps capability and high availability, the e100 is extremely well-suited for large networks in the fixed, mobile and cable broadband markets. Deployed at the IP access edge, the e100 platform delivers the high capacity and performance needed to optimize a massive number of services—whether it is managing traffic at expensive peering point links or ensuring a high quality experience and fair usage for all subscribers based on their service plans.



Deeper into the Packet for Precise Service Management

The e100 platform identifies applications through signatures in the data packet and through sophisticated traffic-pattern analysis to provide unprecedented visibility into subscriber usage, service utilization and service quality on a per application basis. As new applications are discovered on the network, their signatures can be added to the e100. The e100 platform can even identify applications within applications, such as streaming video, VoIP and gaming applications within a Web (HTTP) download. As a result, the e100 provides the granular insight into subscriber and application usage needed to develop more effective marketing programs and services based on actual traffic patterns.

ARBOR® NETWORKS

Arbor Ellacoya eSeries Provides Seamless Integration with Your Network

With the Arbor eSeries Application Programming Interfaces (APIs), you can create, price, launch and bill for new services without the cost and complexity traditionally associated with integrating new network-based solutions. With a single point of integration with your operations support systems (OSS), you can easily and efficiently set and manage usage quotas, provision new services, collect accurate billing records and bill accordingly.

With Arbor eSeries' APIs, you can:

- Quickly and easily create and deliver new billable services in record time.
- Easily modify a subscriber's service plan according to usage quotas.
- Manage future growth by easily adding new Arbor eSeries platforms and software applications without modifying the link to the back office.
- Make more informed strategic decisions by collecting usage data per-subscriber and per-application.

"(Arbor) Ellacoya eSeries has given us the ability to understand and manage the application traffic on our network so that we can deliver expected performance to all of our customers."

Bradley Mayer, IS Manager, Chaska.net

Service Logic Software Options Designed to Support Your Revenue and Operational Goals

Today's service providers face challenging operational objectives. Key among these are the need to:

- Ensure sound capacity planning by understanding current usage patterns and accurately predicting future trends.
- Manage a growing proliferation of bandwidth-intensive applications.
- Deliver customized service plans that increase customer satisfaction and reduce churn.
- Develop competitive yet profitable pricing models based on usage quotas.

To help you achieve these objectives and meet the service demands of your network, the e100 platform offers an integrated suite of Service Logic Software (SLS) options for reporting, subscriber management, API writing and traffic monitoring—including VoIP traffic. These SLS options provide the network visibility needed for effective analytics and reporting, bandwidth management, service plan management and quota management.

Analytics and Reporting

The eSeries SLS provides the insight needed to analyze current usage patterns and accurately predict future trends. As a result, you can effectively plan for additional capacity while ensuring that costs don't exceed revenues. By enabling you to provide the services your subscribers want at the lowest possible price, the analytics and reporting capabilities of the eSeries SLS create a superior user experience for your customers and a sustainable competitive advantage for your business. Now you can verify that your bandwidth management policies are relevant and effective.

The eSeries SLS supports your analytic and reporting needs by showing you:

- How much bandwidth is being consumed, and for what specific purpose.
- Who are your top users.
- How many subscribers are actively using applications within any given hour, day, week or month.
- What is the quality and volume of VoIP calls.
- How many subscribers are making VoIP calls.

How It Works

The e100 uses DPI technology to monitor and classify data directly from your network traffic flow. Inspecting data packets at Layers 3-7 allows the e100 to provide crucial information to your operations and business support systems, without compromising other services. By aggregating data gathered by numerous devices placed throughout your network, the reporting server transforms granular usage statistics into meaningful business intelligence—complete with interactive graphs, charts and reports and presents them via an easy-to-use interface.

Bandwidth Management

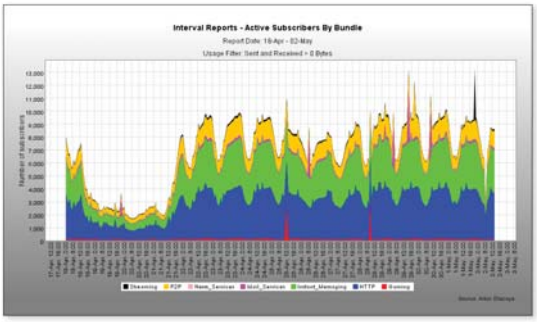
With the e100, you can maximize the capacity you already have and avoid adding costly infrastructure until it's truly warranted. You can proactively manage bandwidth demand and prioritize it according to how and when it's used, and by whom. As a result, you can fully optimize network performance in off-peak and peak periods.

The eSeries SLS supports bandwidth management by enabling you to:

- Prioritize and control network applications to improve the user experience.
- Scale networks to support growing numbers of subscribers and the bandwidth they require.
- Remove select circuits costing hundreds of thousands of dollars per month.
- Deliver a fast, reliable broadband network service, day in and day out.
- Ensure network bandwidth is divided fairly among all users all the time.

How It Works

The e100 recognizes applications on the network and enforces your established policies. Now you can control the available bandwidth by application class, or prioritize traffic based on the relative priorities of each application.



Service Plan Management

The eSeries SLS makes it easy and economical to replace "one size fits all" service plans with customized plans that benefit your subscribers and your business. Customers gain the freedom to choose the service bundles and payment options that suit them. Meanwhile, you gain the insight needed to move from a flat fee to a value-based revenue model that increases profitability.

The eSeries SLS ensures effective service plan management by enabling you to:

- Know how subscribers are using the network and for how long per application.
- Replace "one size fits all" service plans with a wide variety of customized services and pricing.
- Bill on a per application basis.
- Fairly allocate available bandwidth to users on a dynamic basis.

How It Works

When equipped with the appropriate SLS options, the e100 receives data from your operations support systems (OSS) that tells it when individual subscribers log in, what service plan they have and which IP address they're using. The e100 platform then applies the correct policies to each subscriber, tracks each subscriber's usage and produces accounting records suitable for usage-based billing.

Quota Management

The eSeries SLS enables you to craft service plans based on usage quotas. You can attach these quotas to your broadband services as a whole or to individual applications like peer-to-peer file sharing, video streaming and email. You can also track subscribers' exact usage patterns based on bytes, tailor your services and pricing to better match customer preferences, capture additional revenue and increase profits.

The eSeries SLS supports quota management by enabling you to:

- Offer post-paid premium services based on usage quotas.
- Provide services at a lower price.
- Ensure that costs do not exceed revenue.
- Manage subscriber quotas and service plans.

How It Works

The SLS enables the e100 to receive data from your operations support system (OSS) that tells it when individual subscribers login, what service plan they have and which IP address they're using. The platform then tracks each subscriber's usage and sends it to the OSS. When a subscriber's quota is depleted, the OSS instructs the e100 to shut off the service, slow it down or redirect the subscriber to a self-service page.

3 Keys to Broadband Service Optimization

Know

- The demand for specific applications.
- Which applications are used, when, and by whom.
- Precise usage per subscriber.

Control

- Traffic flow during peak loads on network.
- Quota limits for applications, based on the service plan.
- Heavy usage by a minority of subscribers.

Deliver

- High quality experience for all subscribers.
- Fair, tiered pricing plans tailored to specific service levels.
- Service level extensions and upgrades to subscribers.

"When managing traffic dynamically with the (Arbor) Ellacoya eSeries, enormous amounts of bandwidth is made available that would otherwise have been used. Instead, the bandwidth is utilized to support new customers without having to add new infrastructure."

Jane Hanrahan, Senior Account Manager, Imtech Telecom

Arbor Ellacoya e100 Device

Arbor Ellacoya e100 Device Specifications

Power Requirements
Redundant, hot-swappable power supplies
AC: 100/240V
DC: -48V

Physical Dimensions
Chassis: 5U rack height
Height: 8.67 in (22 cm)
Width: 18.88 in (47.9 cm)
Depth: 24.46 in (62.1 cm)

Environmental
Operating: 23° to 122°F (-5° to 50°C)
Redundant cooling fans with replaceable air filters

Device Management and LEDs
Command Line and Web Interface
SNMPv2 MIB with Arbor Ellacoya-specific extensions
RADIUS and TACACS+ authentication for console
Power, System Status, and Link LEDs

Ports
Console Port (RS-232, RJ-45)
Two 10/100/1000 Base-TX Management Ports
Two 10/100/1000 Base-TX Auxiliary Ports

Reliability
RAID hard drive
Internal hardware bypass circuits connect port pairs
Supports external optical bypass units
1+1 active redundant configuration

Regulatory Compliance
Meets NEBS Level 3 and ETSI compliance requirements
RoHS compliant per the Directive 2002/95/EC of the European Parliament

Flow Classification
Built-in stateful analysis
Application signature in packet payload and fragments
Source IP address or subnet
Destination IP address or subnet
Protocol (TCP, UDP, Other IP, Non-IP)
Source application port number
Destination application port number

Configurations
With slots for up to five blades, the Arbor e100 platform can be configured with combinations of the following modules:

Control Module: One required per platform, supporting embedded software functions and providing dual GigE management and auxiliary ports and one console port.

DPI Module: 10 Gbps. Two DPI modules together deliver 20 Gbps throughput.

10 GE I/O Module: Two pairs of 10 GigE ports.

GE I/O Module: Six pairs of GigE ports.

Common deployment configurations may leave one slot empty for later use, making the Arbor e100 easy to upgrade and future-proof.

Service Logic Software Requirements
Configuration Manager (Sun x4200): 2 G RAM, 4x73GB disks, one dual core Opteron

Setup: Solaris 10, two RAID 1 mirrored drives

Subscriber Manager (Sun x4200): 8 G RAM, 2x73GB disks, two dual core Opterons

Setup: Solaris 10, one RAID 1 mirrored drives

Usage Manager/Reporting Manager (Sun x4200): 32 GB RAM, 4x73GB disks, two dual core Opterons

Oracle Servers: Minimum 32 GB RAM, four Opteron-class processors

Oracle Disk Array: Minimum 48 disks

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About Arbor Networks

Arbor Networks is a leading provider of secure service control solutions for global business networks, including more than 70 percent of the world's Internet service providers and many of the largest enterprise networks in use today. Arbor is addressing the most strategic issues for service providers—security and service control; delivering best-in class network protection and the means for delivering revenue-generating, differentiated secure services and service plans. Arbor allows service providers to employ both flow-based and DPI-based technologies to enable measurement and protection of the entire network, from the core to the broadband edge. Arbor also maintains the world's first globally scoped threat analysis network—ATLAS—which uses technology embedded in the world's largest ISP networks to sense and report on comprehensive worldwide threat intelligence.