ByteMobile Reporting Dashboard

Easy Access to Comprehensive Network Intelligence

Traffic reporting and analytics tools to continuously tune performance to meet subscriber demand, reduce churn and increase data revenue and profitability.

The ByteMobile® Reporting Dashboard provides operators with a consolidated summary of mobile data trends and optimization performance across multiple sites.

The Reporting Dashboard capabilities are designed to help operators measure, at a content level, the impact of different traffic types, device types, video formats and network performance. All of these metrics are vital in planning, managing and maintaining mobile data networks for maximum performance, efficiency and subscriber quality of experience (QoE).

**Key Performance Reports**

The Reporting Dashboard generates a number of standardized reports, including:

- Traffic Reports identifying data volume and rates by content, devices, sites, protocols and formats
- Optimization Reports on data reduction, network performance and impact of video optimization, web optimization and content caching
- User Experience Metrics that characterize the quality of the subscriber experience based on key criteria such as video quality, video stalling and web page download speeds

The Reporting Dashboard also generates key performance reports that help operators make investment decisions regarding capacity planning, device selection, performance benchmarking and subscriber QoE.

Figure 1: The ByteMobile Reporting Dashboard generates a variety of reports through easy access to comprehensive network intelligence.
Example: Video Traffic by Content Type and Format
By understanding the types of video content traversing the network, operators can determine which video formats and their associated devices are having the greatest impact on network capacity. Operators can also track trends in subscriber demand for different video content types and ensure that the content being provided meets the requirements of the devices supported on the network.

Understand what content type and video formats are traversing the network

Example: Optimization Savings by Content Type
By measuring savings resulting from optimization by content type, operators can create a mobile data traffic profile and plan for appropriate capacity investments in their network.
Example: User Experience (QoE)

The Reporting Dashboard transcends network-level reporting and provides key information that enables operators to measure subscriber QoE. For example, one key contributor to QoE is video stalling. By measuring video stalling, operators know which devices and networks are meeting or not meeting subscriber expectations – and by how much.

Understand the subscriber user experience by measuring video stalling

Measure impact of optimization on user experience

See how user experience fluctuates

Report reduction in stalling

Unique Insights Into Traffic, Optimization, User Experience

Measure how fast network is able to deliver video to subscribers

Report what video quality is being consumed

See impact of optimization by device type on network capacity
**Standard Web Interface**

The Reporting Dashboard can be accessed remotely through any standard web browser, offering operators an intuitive and easy-to-use tool for understanding mobile network performance and the precise impact of data optimization. Operators can view network information across multiple geographies and deployments, comparing and benchmarking the effects of optimization on network efficiency and subscriber QoE.

**Easy to Use – Powerful Results**

The key features of the Reporting Dashboard are:

- Standardized KPIs that reduce time and effort for operators to analyze network performance and ensure seamless interoperability across geographies and network configurations
- Intuitive web-based application that simplifies access, distribution and administration
- Consolidated reports on mobile data usage, optimization results and other valuable metrics across multiple data centers
- Automatic updating of statistics in historical reports for forecasting and trend analysis

**Content Level Reporting**

The Reporting Dashboard also generates a variety of reports that help operators make investment decisions regarding capacity planning, device selection, performance benchmarking and subscriber QoE.
Table 1: Sample Reports

<table>
<thead>
<tr>
<th>Content Classification</th>
<th>Throughput</th>
<th>Optimization Performance</th>
<th>Web and Video User Experience</th>
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<tbody>
<tr>
<td>• Radio Side Data Volume and Peak Data Rate by Content Type (i.e. Web, Audio, Video, Software Updates)</td>
<td>• Radio Downlink by Port/VLAN</td>
<td>• Aggregate Compression Ratio (Total and By Content Group or By Device Group)</td>
<td>• Web Page Load Time</td>
</tr>
<tr>
<td></td>
<td>• Radio Side Data Volume and Peak Data Rate by Device Type (i.e. Android OS, iOS, Laptop, Symbian, Windows Mobile)</td>
<td>• Percentage of Transactions or Volume Served from Cache</td>
<td>• Web Page Load Time Distribution</td>
</tr>
<tr>
<td></td>
<td>• Radio Side Video Data Volume and Peak Video Data Rate (i.e. ASF, Dynamic Streaming, FLV, HLS, Media Streaming, MP4, RTMP, RTMPE, Smooth Streaming, WebM)</td>
<td>• Percentage of Video Volume Receiving Video Optimization</td>
<td>• Number of Videos</td>
</tr>
<tr>
<td></td>
<td>• Radio Side Audio Data Volume: ADTS, ASF, M4A, MP3</td>
<td>• Overall Data Savings</td>
<td>• Duration of Videos</td>
</tr>
<tr>
<td></td>
<td>• Internet Side Data Volume and Peak Data Rate</td>
<td>• Percentage of Web and Video Traffic Selected for Optimization</td>
<td>• Resolution of Videos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Decrease in Video Stalling Due to Optimization</td>
<td>• Frame Rate of Videos</td>
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System Requirements

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<th>ByteMobile Reporting Dashboard System Specifications</th>
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<td>User Interface</td>
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About Citrix

Citrix (NASDAQ:CTXS) is a leader in mobile workspaces, providing virtualization, mobility management, networking and cloud services to enable new ways to work better. Citrix solutions power business mobility through secure, personal workspaces that provide people with instant access to apps, desktops, data and communications on any device, over any network and cloud. This year Citrix is celebrating 25 years of innovation, making IT simpler and people more productive. With annual revenue in 2013 of $2.9 billion, Citrix solutions are in use at more than 330,000 organizations and by over 100 million users globally. Learn more at www.citrix.com.

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