Mobile audio now generates a significant portion of overall mobile traffic volume, adding to the mobile network operator’s challenge to maintain agile and robust infrastructures that meet subscribers’ quality and bandwidth requirements. ByteMobile has introduced the Internet Radio Optimization application to allow operators to implement robust audio optimization capabilities that reduce the resources required to transport mobile audio traffic by more than 50%. Internet Radio Optimization also seamlessly integrates with the web and video optimization capabilities of Adaptive Traffic Management to help operators manage the network traffic issues that degrade subscribers’ overall quality of experience.

INTRODUCTION

The exponential growth of Internet traffic shows no signs of slowing down, creating a challenge for mobile network operators to maintain agile and robust infrastructures that meet subscribers’ growing demands for quality and bandwidth.

Mobile audio, especially Internet Radio, is a growing category of mobile data traffic. Mobile audio now generates a significant portion of overall mobile traffic volume. Based on information collected from ByteMobile Adaptive Traffic Management Solution deployments around the world, mobile audio – including Internet radio and audio file downloads – now constitutes 12% of mobile data volume in North America and 4% outside North America. Based on early indications, this type of traffic is growing across all geographies. The vast majority of this audio traffic volume is based on Internet radio applications.
Internet radio traffic has increased because radio stations are now using internet transmission as a means of getting around the geographic limitations imposed by traditional transmission methods. Applications including Pandora, Spotify, iHeartRadio, Rhapsody, Slacker and several local radio station applications are increasingly popular among mobile subscribers.

Audio application usage on mobile networks is expected to grow further as automobile manufacturers introduce automobile models with embedded Internet connections. Automakers recognize the demand for smartphone integration and many are adding bluetooth-enabled radios to allow for streaming online music.

To assist mobile operators in overcoming the challenges of Internet Radio traffic growth, ByteMobile has introduced the Internet Radio Optimization application as part of its Adaptive Traffic Management solution. The Internet Radio Optimization application allows operators to implement robust audio optimization capabilities in conjunction with web and video optimization and media caching applications.

**BENEFITS**

The Internet Radio Optimization application provides operators the following benefits:

- **Network efficiencies:** One of the unique challenges of mobile Internet Radio applications is that subscribers can run the application for several hours at a time, which greatly adds to network congestion. However, when the ByteMobile Internet Radio Optimization application is enabled, the amount of network resources required to transport mobile Internet Radio traffic can be reduced by more than 50%. As the volume of Internet Radio on the transit link is reduced, network conditions improve dramatically, even during peak consumption periods. This improves performance for other non-cacheable network traffic, applications, services and non-cached video content.
• **Faster downloads:** Improves audio file download times and frees up network resources quickly so they can be utilized for other time-sensitive applications such as video.

### KEY FEATURES

The key features of the ByteMobile Internet Radio Optimization application include:

- **Seamless integration with web/video optimization capabilities:** ByteMobile Internet Radio Optimization seamlessly integrates with the web and video optimization capabilities of the ByteMobile Adaptive Traffic Management solution. With these integrated optimization applications, operators can easily manage the network traffic issues that degrade subscribers’ overall quality of experience.

- **Supports a wide range of formats and applications:** The Internet Radio Optimization application supports a wide range of audio formats including AAC, MP4 and several others. Compatible applications include popular applications such as Pandora, iHeart Radio, Jango and several others.

- **Wide range of optimization techniques:** Several Optimization techniques can be applied on the Internet Radio traffic in order to enable the type of network efficiencies required by operators. These techniques include just-in-time pacing to eliminate wasted downloads, conversion to efficient codecs and transcoding.

- **Integrated management:** The Internet Radio Optimization application shares its management system with other Adaptive Traffic Management applications. This allows for single-window management of all applications including TCP optimization, caching, video/web optimization, policy capabilities and all underlying hardware systems. Integrated management can significantly lower the total cost of ownership (TCO) of the traffic management system.
• **Integrated caching:** The Internet Radio Optimization application is part of the ByteMobile Adaptive Traffic Management solution, which also supports a caching application. The video caching application inspects all content to detect whether it is audio or video. Content is inspected even if it has a non-audio or video URL or content-type header. This functionality allows higher accuracy when caching audio content files.

**CONCLUSION**

As the mobile Internet evolves, new applications such as Internet Radio continue to emerge and become a significant part of the overall mobile network traffic volume. To meet the challenges created by Internet Radio and other such applications, the ByteMobile Adaptive Traffic Management solution provides the capabilities and tools for operators to effectively utilize network resources and manage subscribers’ QoE.