



## NETWORK OPTIMIZATION DELIVERS MOBILE 3G AND INTERNET TO SCHOOLS AND RURAL GEORGIA

**MAGTICOM LTD.**

### CHALLENGE

MagtiCom wanted to upgrade their existing 2G and 3G service to deliver mobile broadband services and to extend basic broadband to more schools and underserved rural areas. This required adding an Ethernet backhaul upgrade from every cell site. The network also needed traffic flow improvements to optimize the existing infrastructure.

### SOLUTION

MagtiCom and Aviat Networks optimized all data application traffic flows and expanded the Eclipse™ TDM microwave links with Ethernet modules to form a new hybrid TDM + Ethernet transport network. The new Ethernet network provides carrier-grade, QoS-enabled data transport for mobile broadband backhaul.



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Levan Vachnadze,  
Chief Operating Officer MagtiCom

### INTRODUCTION

MagtiCom is a leading telecom provider in Georgia offering GSM and CDMA mobile phone services as well as fixed-wireless telephony to its 1.9 million customers across Georgia. The MagtiCom transport network team has been building and expanding its SDH and PDH wireless network using Aviat Networks microwave solutions for many years.

### ADDING MOBILE BROADBAND

MagtiCom decided to roll out mobile broadband through upgrading its existing CDMA network to EV-DO RevA standard. This mobile radio solution requires Ethernet packet backhaul from every CDMA cell site to the core network data center. The existing TDM microwave cell site backhaul network could not handle Ethernet packets, and an upgrade was inevitable.

Aviat engineers were able to design a simple upgrade program re- using much of the existing TDM infrastructure with minimal disruption to the current services to subscribers.

### CAREFUL PLANNING ENSURES SUCCESS

MagtiCom understood that traffic flow analysis of the main network applications would help identify potential capacity bottlenecks and single point of failures in the network topology.

Beyond just upgrading the hardware, network optimization would be a cost-effective way to ensure that existing and new network assets are efficiently used.

For MagtiCom, the planning stage was a critical part to ensure the success of the upgrade. All network users and stakeholders were interviewed to assess their current and future project demands toward the transport network.

This provided the basis for an end-to-end review of the capacity requirements and a proposal to converge the backhaul of previously separate applications into a single, multi-service packet transport network. This optimizes the use of available microwave bandwidth and enables statistical packet network gain.

### ECLIPSE ENABLES IP MIGRATION

Aviat deployed a microwave upgrade solution that fully utilized the modular architecture of the Eclipse platform.

Ethernet modules were installed within each Eclipse indoor unit (INU) already operating at each cell site. This upgraded each link and the entire network, in turn, to a hybrid TDM+Ethernet multi-service transport. This network could now be QoS enabled for carrier-grade Ethernet transport for MagtiCom's new mobile broadband backhaul and all other applications.

### OPTIMIZED NETWORK SOLUTION

MagtiCom needed to ensure that the new network was delivering the highest level of reliability at all times. This mandated that high-revenue service protection and traffic prioritization could be controlled easily.

The EV-DO mobile broadband traffic cannot interfere with mobile voice traffic, so the Eclipse hybrid network solution was configured to implement an effective and stringent Ethernet QoS policy.

Returning to the customer usage requirements collected during planning, Aviat and MagtiCom were able to cleanly delineate the various levels of service, for both voice and data traffic.

Aviat ProVision EMS management system was also deployed for configuration management and for monitoring and reporting traffic volumes. "We wanted Aviat Networks to deliver a transport network report to independently ensure that our overall evolution plans are going in the right direction and that we make best use of our existing transport network assets," said Levan Vachnadze, MagtiCom's chief operating officer.

### NETWORK OPTIMIZATION

Aviat engineers can optimize the TDM and packet transport efficiency of your TDM+Ethernet or all-Ethernet network. Like TDM grooming, network optimization for hybrid or Ethernet can boost packet capacities, adjust QoS levels for service level agreements for new subscriber services, and synchronize the timing clocks needed for all Ethernet/IP based network elements

### ECLIPSE WITH DAC GE FOR ETHERNET

Eclipse enables optimized transport of all types of traffic, from low-capacity PDH to high-capacity Gigabit Ethernet, with high-end performance at a low cost of ownership.

The DAC GE module enables Eclipse for full carrier-level 3G Ethernet data transfer. Features include:

- RWPR™ for carrier-class fast-switched RSTP protection of ring and mesh networks
- Link aggregation
- Excellent network latency
- Advanced Quality of Service policing and prioritization options
- VLAN tagging (802.1Q and 802.1Q-in-R)

## NEW NETWORK LIGHTS UP SCHOOLS AND RURAL AREAS

Underserved rural areas and many local school districts got a boost getting basic email service and improved capacity for Internet and web-based activities. The school districts could now move some staff functions to the Internet such as scheduling and training. Elementary and high school students were given new computers by the district, so they could now be engaged and connect on the Internet like most students are in developed countries.

## CUSTOMER PERSPECTIVE

"We wanted Aviat Networks to deliver a transport network report to independently ensure that our overall evolution plans are going in the right direction and that we make best use of our existing transport network assets," said Levan Vachnadze.

He also added, "We have a trusted relationship with Aviat and we value their analysis and recommendations. They helped to find precious capacity in our microwave network and advised us on upgrade options to increase network reliability while avoiding future bottlenecks."