

## O3b Networks uses Opengear to ensure network uptime worldwide

### SUMMARY



#### Industry:

Global Satellite Service Provider

#### Customer Profile:

O3b Networks is a global satellite service provider building a next-generation satellite network for telecommunications operators, Internet service providers, enterprise and Government customers in emerging markets. The O3b system will combine the global reach of satellite with the speed of a fiber-optic network providing billions of consumers and businesses in nearly 180 countries with low-cost, high-speed, low latency Internet and mobile connectivity.

#### Objective:

- ▶ Deploy out-of-band console management solutions to extremely remote satellite ground station installations
- ▶ Single box solution to manage user and group permissions for a variety of communications and networking equipment
- ▶ Monitor the physical environment and trigger alerts based on contact closure, temperature and humidity.

#### Management Solution:

IM4200 Advanced Console Servers

#### Results:

- ▶ Consolidated remote site access and environmental monitoring in a single box designed to serve multiple groups with granular permissions and access control.

### CHALLENGES

Using its next generation satellite constellation, O3b Networks delivers affordable broadband connectivity everywhere on earth within 45 degrees of latitude north and south of the equator, with a collective population of more than 3 billion people. Support of the O3b Networks satellite constellation requires the construction of seven "lights out" management gateways across the globe. These "lights out" gateways have a paramount role in ensuring O3b Networks service delivery as there are no on-site technicians located at ground stations. Each of the seven "lights out" gateways will need to provide secure management access to Juniper Networks, RF Antenna devices and serve as a local monitoring and alarm agent in the field.

O3b Networks was challenged with designing a secure out-of-band solution for new greenfield environments that would:

- ▶ Ensure remote management to vital communications equipment located in extremely remote areas.
- ▶ Provide secure group access and authentication to NOC (Network Operations Center) Technicians, Network Engineers and Antenna Ground Station Technicians.
- ▶ Provide localized monitoring of ground based equipment to reduce unnecessary network traffic.
- ▶ Offer a wide variety of form factors to serve both small and large installations.

As a result, O3b Networks selected the Opengear IM4200 Advanced Console Server to provide a flexible and comprehensive "lights out" management solution to ensure service continuity at ground stations located throughout the world.

"What we really liked about the Opengear platform is the clean user interface, simple cabling construct and the integration of the power management tools and utilities. We will also rely on the Opengear EMD5000 to provide a host of critical environmental and physical controls at each of our locations."

- Andre Christian  
Network Engineer, O3b Networks

### Ensuring remote service delivery at the network edge with out-of-band access

The principles and practices of out-of-band network management have long been established as an effective way to reduce support costs and ensure business continuity. Always-available remote access is still the cornerstone of any out-of-band solution, with one or more dedicated wired or wireless out-of-band interfaces commonly integrated to minimize points of failure. In the event of a network outage, the out-of-band interface provides a secure alternate path for technicians and engineers to remediate and troubleshoot problems located in remote installations without IT staff. The IM4200 is equipped with a built-in modem for dial-in and dial-back with a connection monitor for automatic failover. The IM4200 also supports broadband failover and embedded 3G GSM & CDMA cellular out-of-band access.

Deploying the Opengear IM4200 at the network edge drastically reduces the costs associated with physical on site visits and eliminates the process overheads of raising a trouble ticket, scheduling resources and validating the fix.

### Provide secure group access and granular permissions

The Opengear IM4200 ensures that only the right users have the right access to devices and systems by providing granular and customizable authorization controls using the industry's most stringent security, encryption and Authentication, Authorization, and Accounting (AAA) requirements, ensuring that management policies are always enforced, even during a network outage. User and group authorization can be managed by third party servers including TACACS+, LDAP, Kerberos, RADIUS. The IM4200 allows for a seamless failover to a local user and group access list in the event the primary authentication servers are not available or return errors.

### Localized monitoring at distributed remote locations

Using continuous infrastructure status monitoring and alerting features, network admins get immediate email, SMS or SNMP notification when there is trouble brewing at remote sites. Being directly attached to critical network infrastructure console ports, the management devices couldn't be better placed to detect the first signs of trouble. The Opengear IM4200 devices act as distributed agents for Nagios, Solarwinds, and other, vendor-specific tools, to form the framework of an enterprise-wide system.

O3b Networks has outlined a monitoring initiative that employs the Opengear IM4200s as localized Nagios monitoring servers to offload monitoring traffic on the management network. At the remote site, each Opengear console server functions as a distributed Nagios server and performs checks on all the hosts and services defined at each remote location. The Nagios NSCA client and NRPE server are embedded in the console server enabling it to perform these checks locally and independent of a central Nagios server. In the event that the checks find something wrong with a network service or host resource at a remote site, the console server then informs the central Nagios monitoring server which in turn sends the administrator an alert. This offloads the overhead of performing all the service checks from the one central monitoring server out to the distributed servers (and when monitoring hundreds or even thousands of hosts this may become quite important).

### Environmental monitoring and physical control

Beyond remote access and control, the Opengear IM4200 can be expanded to monitor temperature, humidity and physical site access when paired with the Opengear EMD5000. The Opengear EMD5000 plugs into any serial port on Opengear console servers and provides both temperature and humidity data and supports two external general purpose status sensors. O3b Networks has integrated Opengear door contact sensors to detect physical site intrusions into ground station enclosures. The Opengear platform gives O3b Networks the most comprehensive solution on the market today for managing network infrastructure and environmental in far-away places by being virtually there.

### Flexible, scalable solutions for business continuity

Network providers such as O3b Networks require secure and dependable remote access to their satellite constellation ground stations spread throughout the world to ensure service delivery in a competitive market. Maintaining service continuity is crucial to the future success of O3b Networks. Standardizing on the Opengear solution allows O3b Networks the flexibility to choose from a wide variety of form factors to serve future locations as the satellite constellation expands.

"Building a global network coupled with the Opengear platform, allows us to have the confidence in knowing that we can securely get to our gear 24/7 regardless of the out of band solution in country."

- Andre Christian  
Network Engineer, O3b Networks

#### Key Features: Opengear IM4200

- ▶ Remote monitoring and management of Juniper, Antenna and RF equipment
- ▶ Secure Out-of-band access to remote locations distributed worldwide
- ▶ Localized monitoring to increase remote site visibility during outages
- ▶ Environmental monitoring with connectivity for external sensors

#### About Opengear:

Opengear Data Center Infrastructure Management (DCIM) and Remote Infrastructure Management (RIM) appliances secure and simplify remote monitoring, access and control of critical IT & network, and Operations Technology (OT) & industrial control systems. Opengear smart appliances integrate next-generation automation and true out-of-band management technologies, ensuring our customers maintain complete control over critical infrastructure - wherever, whenever.

Opengear is privately owned with offices in USA, UK and Australia. For more information, please visit [www.opengear.com](http://www.opengear.com).

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