



Microwave Remote Management

One Issue Facing Carriers Today

One scenario occurs in diagnosing problems that come up in microwave transport. Both wireline and wireless carriers will deploy microwave in areas where fiber access is difficult or expensive, in areas that are underserved by transport carriers, or in areas where the cost of installing microwave is less than the cost of deploying transport carrier services. Most microwave radios offer excellent diagnostic capabilities. The trick is providing a technician with access to this diagnostic capability. When trouble occurs, the technician must drive to the nearest site where access to the microwave network is available, plug into the microwave radio, and run diagnostics. Further, the source of the problem is not always apparent. Is the problem associated with the transmission at site A or the signal reception at site B? It may take more than one trip to find out.

In some cases, the problem may originate in one of the microwave site's ancillary pieces of equipment, such as a multiplexer. If so, the source of the problem may not be visible from the microwave's internal diagnostics. The technician would have to plug his laptop into the multiplexer to check out any problems that may originate within the MUX.

The Solution to the Problem

TelStrat's Platform for Unified Management Access (PUMA) offers a solution to these problems. Installing PUMA SC-8100 into a microwave network will enable cell techs to diagnose the exact cause and location of the problem without having to travel to the affected site. And when a trip to repair the problem is necessary, the cell tech will be dispatched to the correct site with foreknowledge of how to repair the problem. Again, this significantly reduces the time it takes to diagnose and repair an outage.

TelStrat's PUMA (Platform for Unified Management Access) is the most powerful and flexible product on the market today, providing a secure, browser-based, vendor agnostic, single point of access and management of all remote network elements in a carrier's network.

The PUMA platform allows up to 512 simultaneous users to perform Operations, Administration, Maintenance, and Provisioning (OAM&P) of remote network elements all by accessing a single IP address.

PUMA unifies the management of access network elements. The PUMA platform allows real-time access, information, and control of every network element, whether local or at the most remote deployment. Using a secure IP, serial, or aircard connection, the PUMA platform lets technicians, maintenance engineers, and network operations center (NOC) personnel configure, troubleshoot, and manage geographically dispersed network elements at any location, all from a single IP address.

With PUMA, service providers can centrally manage and provision services dynamically across multiple remote sites. Technicians can now remotely test, diagnose, and troubleshoot equipment before dispatching field personnel. This resolves network issues faster, reduces expensive truck rolls, and helps both wireless and wireline service providers anticipate events and prevent service disruptions.

The TelStrat PUMA system consists of two elements:

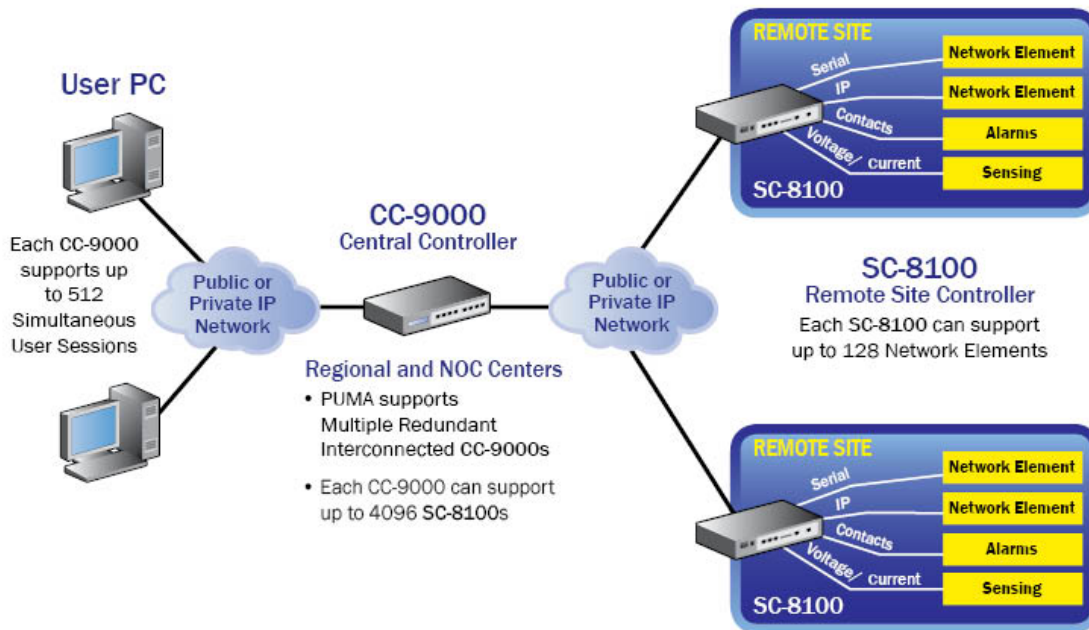
- One or more Central Controllers (CC-9000)
- A Site Controller (SC-8100) at each central office.

The CC-9000 serves as PUMA's central command center, communicating directly with each SC-8100 Site Controller, and focusing the power of remote SC-8100 units into a single, unified point of network status information and network element management. Multiple CC-9000's can be located in regional centers or management offices, as well as at NOC centers.

The SC-8100's are located at each central office. The SC-8100 provides physical connections to all remote network elements, whether by serial or IP (Ethernet) connections, normally open or normally closed alarm monitoring inputs, form C relay outputs, or analog inputs (0-10V or 4-20 ma).

Each SC-8100 can support up to 128 individual Network Elements, and each CC-9000 can support up to 4,096 SC-8100's, and up to 512 simultaneous users.

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Benefits of Deploying PUMA Remote Management Products

The PUMA platform provides a carrier with two substantial benefits: a substantial reduction in the number of truck rolls needed to operate the network and a reduction in the length of an outage when one occurs. Any operator that is under pressure to reduce costs and improve network availability will find the PUMA platform to be a welcome addition to his OAM&P capabilities.

In summary, the PUMA Platform provides the following functions:

- Network element monitoring, configuration, and maintenance, resulting in a significant reduction of site visits
- Fault identification and “smarter” truck rolls
- Remote network element provisioning
- Network element inventory management
- PUMA Network Address Translation (NAT) provides better use of ports and IP addresses
- Network element configuration backup and restoration

- Network element operating software upgrades and downloads
- Vendor software application hosting
- Security features to prevent unauthorized access to network elements
- Activity logs by user, network element, and time of day, assisting in problem identification and corrective action
- Network element polling and alarm generation
- Management reports
- Alarm aggregation, contact closures, voltage and current sensing
- Handling of TL-1 and SNMP messages
- Integrated RET controller for cell site antenna tilt control
- Video camera site monitoring
- On site storage of events on the SC-8100 in the event of communication failure with the CC-9000

All implemented in a single 1RU rack mounted package

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