

## GroomerII Cincinnati Bell<sup>SM</sup>

Headquartered in Cincinnati, Ohio, Cincinnati Bell Telephone (CBT) provides telecommunications services to numerous municipalities within its service area, many of which maintain independent Public Safety Answering Point (PSAP) emergency services communications centres. When CBT sought to integrate powerful, IP-based next generation (NG9-1-1) capabilities for its constituent municipalities in 2009, it undertook a comprehensive review of suitable technologies and providers. After diligent participation in standards body deliberations and a thorough vetting of vendor options, CBT turned to microDATA's Emergency Services IP network (ESInet) and Aculab's GroomerII gateway to meet the needs of its customers. Among those needs are compliance with the i3 standards from National Emergency Number Association (NENA), and the ability to transfer calls and call data across traditional serving area boundaries.

"Providing emergency communications is an essential service that we offer," explained Don Kiely, Emergency Services Manager at CBT. "There's no room for error and no cutting corners. The system has to work flawlessly every time. When it was time to look at deploying a new IP-based 911 system, we considered many different vendors in our selection process. Smooth and reliable integration with our SS7 network was of paramount importance in our selection criteria. The combination of microDATA's solution and the Aculab GroomerII product emerged as the best option to address our needs."

As with many operating companies in the US, CBT has experienced the evolution of 911 services from the very beginning. With a network that encompasses IP, SS7 and even analog circuits in some locales, the telco must accommodate a variety of network connection methods – all while delivering top quality services. While some older connections rely on ISDN and even CAMA trunks, the core of the emergency services network uses SS7 (signalling system #7) to route calls and ensure network reliability. Tying together an ecosystem of disparate networks to ensure seamless emergency services can be a complicated and expensive journey for service providers. For this reason, GroomerII's embedded SS7 protocol support fits perfectly with CBT's operating requirements and was an important element in CBT's decision to deploy the microDATA-Aculab solution.

"GroomerII is an ideal gateway solution for operators that must deliver highly reliable emergency communications services across disparate networks," noted Ian Colville, Product Manager for Aculab. "Its ability to reliably perform a wide range of protocol, media conversion and routing tasks gives operators a compelling solution to integrate next generation IP services into legacy networks cost-effectively, while maintaining the highest level of performance."

With as many as 24 distinct PSAPs that could potentially migrate to the microDATA-Aculab NG9-1-1 platform, the CBT team ran the solution through a battery of tests to ensure that the solution performed at an optimal level to satisfy stringent CBT standards.

"Initially, we trialled this solution by deploying it in a select number of PSAP centres," continued Kiely. "We've been very encouraged by the performance of the combined microDATA-Aculab solution and are now considering expanding implementation to other centres that are ready for an upgrade."

Rick Powers, the technical services specialist at CBT who led the implementation, said, "We cutover our first PSAP in October 2009, and have significant knowledge and experience on how to deploy NG9-1-1 solutions in our network. By the time we handled the City of Cincinnati cutover in January 2010, we knew that the microDATA NG9-1-1 platform and GroomerII could comfortably handle Cincinnati's large call volume, which exceeds 50,000 calls per month, and we were confident in our ability to provide a seamless transition to this IP-based technology. The cutover was very successful, emergency services were not impacted, and the minor issues which arose were quickly and easily disposed."

The key function of GroomerII is the seamless connection between the SS7-based network and the NG9-1-1 system for call routing. Within the NG9-1-1 Legacy Network Gateway specifications, these functions are referred to as Network and Location Interface Functions. Support for basic SS7 network configuration architectures, such as link redundancy to Signal Transfer Point (STP) switches, ensures reliability of emergency communications during service interruptions.

“The ability to equip up to 40 T1 circuits in each GroomerII provides us with tremendous scalability and flexibility,” commented Powers. “Also, to mitigate catastrophic failure scenarios, we have deployed two layers of redundancy in the NG9-1-1 network. The typical two-site physical network redundancy has been enhanced with two GroomerII units at each site for physical redundancy on all routes. We want to make sure we have all of the bases covered in the case of a disaster.”

Particularly well-suited to innovative developers like microDATA, who provide customers with critical life-saving communication solutions and demand the best in the industry for bridging legacy 9-1-1 to NG9-1-1, Aculab’s GroomerII is a powerful tool to manage gateway and signalling functions.

### Why Microdata recommends GroomerII for ESInet solution

microDATA recommends the use of Aculab’s GroomerII gateway for use with our ESInet solution. Unique aspects of SS7 for 9-1-1 and the fact Aculab has likely gone farther than any other vendor in addressing them, are just a couple of the many reasons we have chosen to engineer our solution with GroomerII.

Additional advantages of GroomerII include:

- Combined microDATA ESInet and Aculab GroomerII solution can exceed what a 5E does today for 9-1-1
- Very good reputation in the industry
- Only SS7 gateway that supports many of the features required for 911
- Very flexible to accommodate needs of 911 such as added features for inter-tandem transfers and failovers
- Provides the best voice quality
- Support for a \*mix\* of trunk types without need for different hardware.
- Aculab as a company is willing to be flexible and implement custom features; this is not possible with other gateway manufacturers. This is probably the most critical and most important attribute of any vendor we choose. This protects the customer’s investment by not dead-ending their purchase prematurely due to lack of flexibility and adaptability
- Out-of-the-box accommodation of gateway requirements to function as an SS7 gateway for 9-1-1 (CPCAT changes are one example)

GroomerII’s built-in SS7-to-SIP interconnection and routing, support for multiple trunk types, and a full-featured call manager, enable interoperability across a converging network transport landscape without the need for external softswitches, signalling gateways or media gateway controllers. The NG9-1-1 system provides Voice over Internet Protocol (VoIP) service to the PSAP operator positions. The Session Initiation Protocol (SIP) is used for all calls in and out of the PSAP. GroomerII provides the conversion of SIP to legacy voice protocols (e.g., SS7) as part of the gateway function. “There was a learning curve for the operators at the PSAP,” continued Powers. “They had to learn that VoIP sometimes sounds different, (not better or worse, just different,) from what they were accustomed to. One particular issue was echo originating at the IP to TDM conversion. Aculab, microDATA and CBT worked together to troubleshoot this issue and we put it to bed quickly and efficiently.”

“We recommend Aculab’s GroomerII to our customers because we see it as the best fit to address the unique specifications and requirements of an NG9-1-1 solution,” said Nathan Wilcox, microDATA CTO. “In addition, Aculab has been a true partner by assuring that its GroomerII gateway meets the high demands of microDATA’s NG9-1-1 implementations. Aculab is a completely customer-driven organisation, which gives us the confidence that its products will continue to be relevant as these technologies continue to evolve.”

“We currently serve six emergency services contact centres on the NG9-1-1 platform,” concluded Powers. “These centres handle about 85,000 calls per month. Clearly, reliability and robust operations are essential to provide the highest standard of emergency communications. The public and the municipalities we serve expect nothing less. Aculab and microDATA intuitively understand the demands placed on emergency services contact centres and have delivered solutions that exceed these exacting requirements.”