



Reaching new heights.

ORGANIZATION

Samsung Corporation

LOCATION

Burj Dubai (Dubai Tower),
United Arab Emirates

INDUSTRY

Engineering and Construction

CHALLENGE

Provide reliable communications
at construction site

SOLUTION

Firetide wireless mesh network
Samsung Wi-Fi phones
Samsung SDS RoIP solution
Sony IP cameras

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Firetide Wireless Mesh Reaches Unsurpassed Heights at Burj Dubai

Tallest Structure in the World Rises from the Desert with Help from Firetide

The newest icon of the Middle East, the Burj Dubai (Dubai Tower), is the tallest skyscraper in the world and the centerpiece of a large-scale development designed to add to Dubai's newest—and thriving—tourist trade. When completed, the Dubai Tower will appear from a distance as a silvery glass-sheathed sculpture. Inside, the concrete tower will house offices, apartments and stores. Surrounding the tower, a luxurious new city is under construction that will include 30,000 homes, nine hotels, parks, residential towers, shopping malls, and a man-made lake.

Samsung Engineering & Construction, headquartered in Korea, is constructing the Dubai Tower, which will rise more than 2,275 feet and is scheduled for completion by the end of 2008. Without the help of a Firetide wireless mesh network to provide clear voice communications and real-time video streams, this architectural wonder might never have been completed. Firetide wireless mesh resolved a critical communication problem and allowed construction of the tower to go forward smoothly.

Unexpected Communications Challenges

At the start of the Dubai Tower project, communications in and around the construction site were accomplished using traditional walkie-talkies. As the tower grew, the walkie-talkies became less and less reliable, creating delays and safety concerns. "When the building exceeded thirty floors, problems with our communications system surfaced," said Chang Geun Lee, project manager for Samsung Corp. "We started to experience delays or no connection between the thirty-first and the ground floors, particularly in the core of building."

Samsung Corp. enlisted the project's systems integrator, Samsung SDS, the largest IT service provider in Korea, to explore solutions to improve communication capabilities for the construction crew. Paramount to the safety of the project was the ability of the crane operator to speak with the crew on the top floor, which changes and grows higher as each new floor is added.

Delay in Communication Equals Delay in Construction

Samsung SDS explored a number of communications platforms and techniques, all which proved unsuccessful. "We tried adapting a radio amplifier for our walkie-talkies—this amplified the signal, but also increased the noise and delay time. A number of other solutions failed as well, like trying to reduce signal leakage with coaxial cables," recalled Jerry Jang, project manager for Samsung SDS.

Ultimately, Samsung SDS developed a system that converted radio signal to IP signal to enable communications from walkie-talkies to be carried over an IP network, without loss or degradation of signal. The Firetide wireless mesh network had just the features they needed to implement the new system. "After thorough testing of various products, we determined

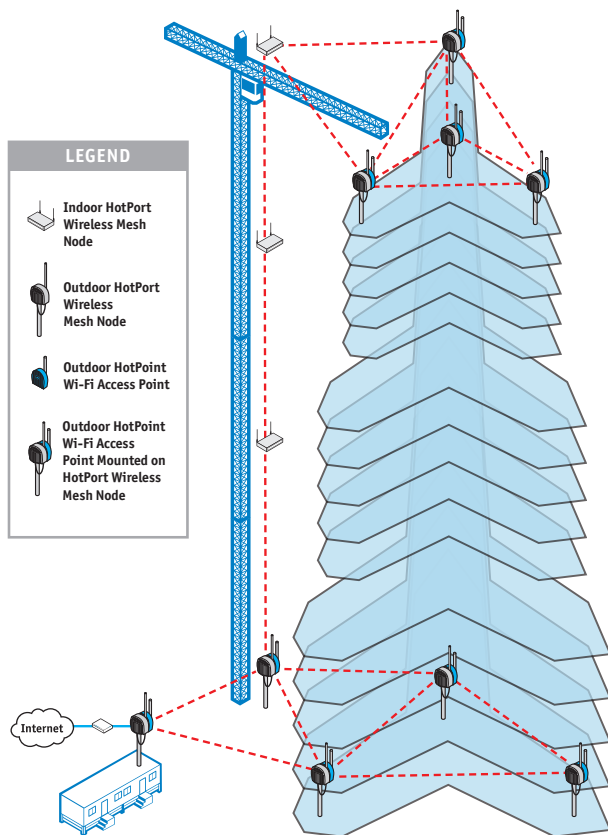
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Burj Dubai

that the Firetide mesh network was the best solution for our situation,” said Jerry Jang. “We were impressed with the 25 Mbps throughput Firetide mesh delivered. Besides the excellent bandwidth and voice quality, we also chose Firetide for its ease of deployment, speed of implementation, flexibility and resiliency.”

Unique Challenges Mean Unique Solutions

The Firetide wireless mesh network that Samsung SDS deployed at the construction site consists of a combination of Firetide HotPort® outdoor wireless mesh nodes and HotPoint® access points. The result is the successful implementation of wireless video surveillance, VoIP (voice over IP), and Radio over IP (RoIP) applications at the construction site.



The biggest challenge in deploying the network was placing one node on the top of the tower crane. Jerry Jang recalled: “Picture this: from the 156th floor, the installer climbed another sixty meters higher to place a Firetide node on our tower crane. The results were fantastic. The network was deployed quickly and easily, in two weeks, and greatly improved the safety and productivity of workers.”

Reaching the Sky with Firetide Mesh

Samsung construction workers now use a walkie-talkie system to communicate over the wireless mesh. In addition, the same Firetide mesh network supports Sony IP video cameras deployed at the construction site for monitoring and loss prevention, as well as Samsung Wi-Fi® smart phones. “Initially, we expected the Firetide



Constructing the world's tallest skyscraper.

network would only solve the walkie-talkie voice communication problem,” said Jerry Jang. “But an added benefit was the ability to use IP cameras and VoIP phones over the network. We now can monitor the safety status of the top floor workers inside our ground-level offices.”

Other benefits of the Firetide mesh network include resiliency and affordability. The Firetide wireless mesh network proved highly effective in bridging short hops from node to node, and self-healing and re-routing communications whenever a node goes down or is temporarily blocked. This makes the difference between a deployment that is effective and one that is not. And the Firetide wireless mesh network can be deployed at a much lower cost compared to laying fiber or cable in a challenging and constantly changing construction environment.

No Longer Out of Reach

Firetide wireless mesh now provides Samsung workers with reliable communications and real-time video surveillance for construction oversight and security. The network cleared up the communications problems, enabling construction to continue safely and on schedule. “Firetide technology is the perfect choice for the Dubai construction project. Its support for RoIP, VoIP, and real-time video is excellent,” said Chang Geun Lee.

Samsung plans to continue using the Firetide network solution to support on-going operations. When the Dubai Tower is complete, Samsung will redeploy the equipment at other construction sites, since the Firetide network is portable and can be scaled up or down depending on any new requirements.



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