

## The Client

A leading US-based provider of enterprise wireless LAN equipment and management software

## Industry

Telecommunications

## The Business Challenge

The Smart Mobile solution is an enterprise-grade wireless LAN infrastructure that runs seamlessly, even when subjected to a variety of equipment failures, extreme traffic conditions or maintenance that would normally require the network downtime. Voice calls continue uninterrupted, sessions are securely maintained and users have always-on access to mission critical network services.

The solution consists of a family of wireless controllers and access points, as well as a software suite for network planning, management, security and location services.

The client was looking to develop a new release of Smart Mobile, containing several major technological advancements. Due to time and budget constraints, the decision was made to outsource it to a qualified vendor. Client already had a very positive collaboration experience with Luxoft, so that made the decision process easy and Luxoft was contracted again.

## The Solution

Luxoft, together with the client developed a significantly improved new release, boasting the following new capabilities and features:

### Higher Resilience and Availability

The latest evolution of Smart Mobile architecture offers unmatched system-level reliability, session-level availability and simplification of changes in a redundant configuration, by applying the principles of virtualization to wireless LANs. A group of wireless controllers is configured as a virtual cluster that allows each controller to act as a backup for any other. Controllers in the virtual cluster collaborate with one another to intelligently determine the optimal balance for the operational load. Working as a community, they use load-balancing distance vector and capacity planning algorithms to efficiently and dynamically share access-point control. This unique approach provides many-to-many redundancy, eliminating the need for expensive backup devices that rarely get used and making full use of access point licenses spread over multiple controllers. Much more important, it offers real non-stop availability with hitless failover for active sessions. Because WLAN controller failure no longer has any impact on user sessions, this capability allows instant capacity scaling and unscheduled in-service upgrades, all with zero downtime.

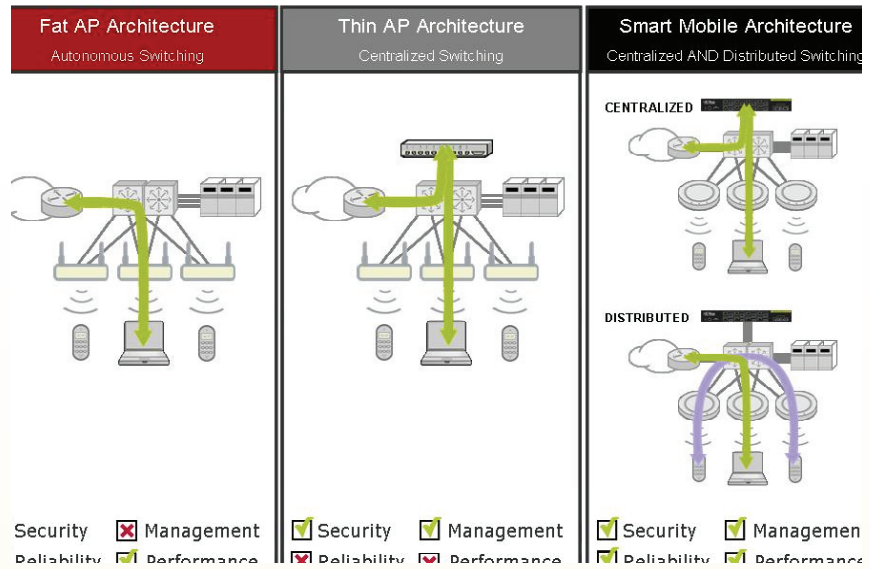
## Technology Utilized:

- C/C++, Java, TCL, JavaScript, AJAX, QNX, NetBSD, 802.11 protocol suite, Radius, 802.11x, SSH, HTTP, TFTP, SNMP, SOAP, SilkTest, FanFare, CAPWAP, Wireshark, AirPCap



## Innovative System Architecture

Smart Mobile overcomes the limitations of current-generation WLANs by supporting both centralized and distributed data forwarding based on the requirements of the underlying application. The result is optimized traffic flows, radically reduced latency, and ultra high performance, all without the high cost of upgrading network controller infrastructure. Smart Mobile introduces a concept called “intelligent switching”, to combine the performance of standalone access points (“fat AP” architecture) with the manageability and security of a centralized switching solution (“thin AP” architecture), while offering excellent scalability. Intelligent switching preserves the thin access point model, as well as the centralized control and management, while providing the traffic benefits of both models. It allows the application to drive the way the network behaves, by choosing between distributed forwarding, centralized forwarding, or even a combination of both.

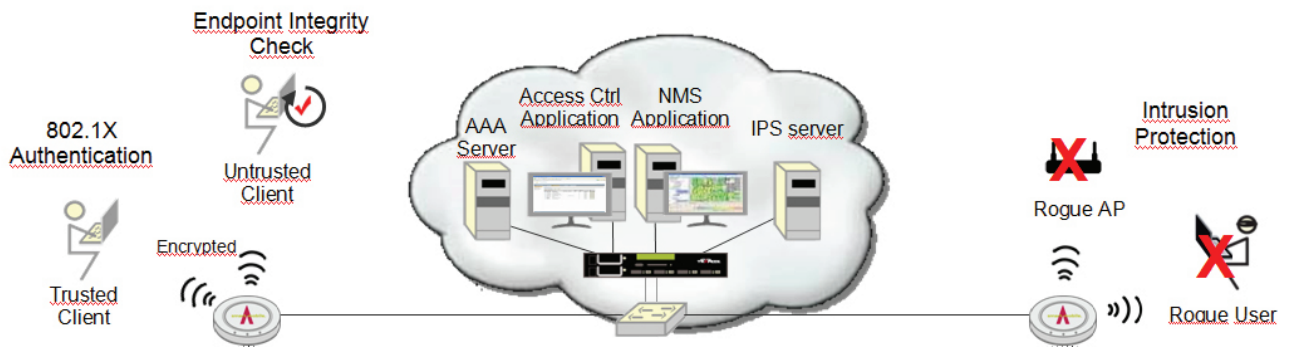


## Lower Total Cost of Ownership

Smart Mobile provides lower capital costs than all other leading WLAN solutions, thanks to a superior architecture and a stackable form factor. In addition, its award-winning network management application enables network administrators to plan, configure, manage and optimize their networks in a fraction of the time required by others, offering unified management for indoor and outdoor deployments and yielding significant savings in operating expense, especially for fully redundant configurations. Additional savings can be obtained when intrusion detection and prevention systems are required, since regular access points can be converted into dedicated sensors on-the-fly as needed.

## Best-in-Class Enterprise WLAN Security

Smart Mobile combines the highest security standards for authentication and encryption with industry-leading intrusion detection and prevention, delivering the most secure wireless solution on the market. It protects against eavesdroppers and unauthorized users, and isolates traffic between multiple private groups. Distributed cryptography implemented in Smart Mobile access points ensures scalability of security policies without compromising throughput performance as the number of access points increases. Smart Mobile adheres strictly to the highest security protocols and industry standards adopted by all major enterprise WLAN solutions, including 802.1x based authentication, AES-CCMP encryption, WPA/WPA2 security, 802.11i standard and all Wi-Fi Multimedia (WMM) subsets, as well as all common EAP protocol types.



### Most Advanced WLAN Access Control

Smart Mobile delivers advanced access control with dynamic authorization over all client access on Enterprise WLANs. This allows WLAN access privileges for any user to be dynamically adjusted based on a variety of criteria such as the user's location, time and date, day of week, user traffic and more. All this is controlled from a centralized management point, with no need to touch the user devices. Smart Mobile also introduces the concept of identity-based networking, a technique that allows user mobility with tough security, and allows services to be delivered based on a mobile user's identity, rather than by the port or device through which he user connects to the network. Identity-based networking also enables both a single persistent login and passport-free roaming, which permits the introduction of services such as voice to a wireless LAN. Because user credentials define access and network resource privileges, different groups with different privileges can securely share the same wireless infrastructure.

### Industry's only 3D Wireless Planning

Smart Mobile has an innovative, easy-to-use, full-lifecycle enterprise WLAN management suite that enables network managers to perform all critical functions necessary for planning, configuring, deploying, monitoring, and optimizing their Enterprise Wireless LANs. One of its strongest points is the 3D wireless planning tool, with unparalleled RF planning capabilities. CAD files can be imported to model RF behavior within any building or outdoor area, with different layers representing different building materials or other physical obstructions, each with corresponding RF characteristics. It then performs a virtual site survey to automate coverage, capacity, and voice planning. The result is an accurate three dimensional RF plan. The intuitive graphical display shows signal strength, coverage holes, interference, and high utilization areas, and even allows drag-and-drop repositioning of access points if their recommended placement is inconvenient. The planning tool also produces a comprehensive deployment plan identifying precisely where to mount access points, and the expected signal strength in different places.





## Advanced Network-Wide WLAN Configuration

Smart Mobile excels in configuration management, with its ability to provide network-wide switch configuration. Using a transactional protocol, it ensures that the deployment is precisely orchestrated from one stable state to the next desired state, without the risk of misconfiguration that could potentially disrupt network services. It provides live or off-line changes and gives the user the power to deploy or roll back configurations atomically across the entire network, on demand, in a few button clicks. Controllers and access points are automatically configured in one step, including security policies, radio channel and power settings, and roaming profiles for users. It can configure the network for distributed or centralized forwarding, and it provides powerful wizards for easy configuration for voice, security and wireless mesh services.

## Most Comprehensive WLAN Monitoring

Smart Mobile provides the most comprehensive monitoring solution. Network wide events and faults are collected, correlated and displayed in a dashboard view. All the monitored activity can be summarized on one screen, and the user can drill down to details on any monitored event or fault. Smart Mobile provides complete RF management and monitoring of network usage patterns to protect against unwanted intrusions and denial of service (DoS) attacks. It also detects, identifies, and locates rogue access points, their users, DoS and probe attacks, as well as 802.11 ad hoc networks. Smart Mobile is the only management system that can save 30 days of monitoring data and present them with a trend analysis, including comprehensive reporting tools that enable the IT staff to baseline network performance and track usage trends.

## Benefits

- Performance
  - Lowest latency suitable for voice over Wi-Fi
  - Efficient traffic flows
  - Seamless roaming
  - Traffic management
  - Highest scalability
- Reliability
  - Controller clustering
  - Hitless failover
  - Self-optimized mesh
  - In-service upgrades
  - Application continuity
- Security
  - Identity based roaming
  - Voice call security
  - Endpoint integrity
  - Advanced WLAN intrusion detection/prevention system
  - Application firewall
- Management
  - Predictive RF planning
  - Cluster configuration
  - Monitoring & reporting
  - History and audit trail
  - Scalable guest access

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