

OUR CORE SERVICES

1. Enterprise WiFi Network Design

- Site surveys (predictive and active)
- RF coverage and capacity planning
- Access point placement optimization
- Channel and power planning
- Controller and management architecture
- Network topology design
- Quality of Service (QoS) configuration
- Roaming and handoff optimization

2. WiFi 6/6E/7 Planning

- 802.11ax (WiFi 6) implementation strategies
- 6 GHz spectrum planning (WiFi 6E)
- WiFi 7 (802.11be) readiness and future-proofing
- Multi-gigabit wireless design
- OFDMA and MU-MIMO optimization
- Target Wake Time (TWT) for IoT devices
- Enhanced security (WPA3) implementation

4. Specialized WiFi Solutions

- Healthcare wireless networks (medical devices, RTLS)
- Hospitality WiFi (hotels, resorts, cruise ships)
- Retail and point-of-sale connectivity
- Manufacturing and warehouse wireless
- Outdoor and harsh environment WiFi
- Public WiFi and guest access networks
- Smart building and IoT integration

5. Network Security & Policy Design

- Secure SSID architecture and segmentation
- WPA3-Enterprise and WPA3-Personal implementation
- 802.1X authentication design (RADIUS/NAC)
- Guest network isolation and captive portals
- Role-based access control (RBAC)
- Wireless intrusion prevention (WIPS)
- Compliance planning (HIPAA, PCI-DSS, GDPR)

6. WiFi Performance Optimization

- RF interference analysis and mitigation
- Spectrum analysis and management
- Co-channel and adjacent channel optimization
- Automatic Radio Resource Management (RRM)
- Application performance monitoring design
- Network analytics and reporting architecture

7. Migration & Upgrade Planning

- Legacy WiFi system assessment
- Technology refresh strategies (WiFi 5 to WiFi 6/6E)
- Phased deployment planning
- Minimal-disruption migration designs
- Coexistence planning during transitions
- ROI analysis and business case development

OUR DESIGN APPROACH

1. Requirements Analysis

Understanding your coverage areas, user density, application requirements, device types, security policies, performance expectations, budget parameters, and future growth plans.

2. Site Survey & Assessment

Conducting predictive (pre-deployment) and active (post-deployment validation) site surveys including RF measurements, interference analysis, building material assessment, and existing infrastructure evaluation.

3. RF Design & Modeling

Creating detailed heat maps, access point placement plans, channel assignments, power levels, coverage predictions, capacity analysis, and interference mitigation strategies using industry-leading planning tools.

4. Network Architecture

Designing controller placement, management systems, authentication infrastructure, network segmentation, VLAN architecture, QoS policies, and integration with wired infrastructure.

5. Security Planning

Implementing authentication methods, encryption standards, access policies, guest network isolation, intrusion detection, and compliance requirements specific to your industry.

6. Documentation & Specifications

Delivering comprehensive design packages, equipment specifications, installation guidelines, configuration templates, testing procedures, and validation criteria.

7. Validation & Optimization

Post-deployment site surveys, performance testing, coverage verification, capacity validation, and fine-tuning recommendations.

DESIGN DELIVERABLES

Comprehensive Planning Package:

Site Survey Reports

- RF coverage heat maps (signal strength, SNR, data rates)
- Channel utilization and interference analysis

- Spectrum analysis results
- Existing network assessment (if applicable)
- Building floor plans with AP placements
- Predictive vs. actual comparison (validation surveys)

Network Design Documentation

- Network architecture diagrams
- Access point placement plans with coordinates
- Channel and power assignment tables
- Controller and management infrastructure design
- VLAN and network segmentation architecture
- IP addressing and DHCP schemes
- QoS policies and traffic prioritization

RF Engineering Analysis

- Link budget calculations
- Coverage overlap analysis
- Co-channel interference modeling
- Adjacent channel interference mitigation
- Signal-to-noise ratio (SNR) planning
- Minimum basic rate configurations
- Roaming threshold recommendations

Equipment Specifications

- Access point models and quantities by location
- Controller hardware/virtual specifications
- Power over Ethernet (PoE) requirements
- Switch port counts and capabilities
- Licensing requirements
- Antenna selections (internal/external)
- Mounting hardware and accessories

Security & Policy Configuration

- SSID design and broadcast policies
- Authentication method specifications
- Encryption standards and protocols
- Guest network architecture
- Role-based access policies
- Firewall rules and ACLs
- Compliance documentation

Implementation Documentation

- Bill of materials with part numbers
- Installation guidelines and standards
- Cable routing specifications
- AP mounting instructions and heights
- Configuration templates and scripts
- Pre-deployment checklist

- Testing and acceptance procedures
- Commissioning plan

Validation & Testing

- Post-deployment survey methodology
- Performance testing criteria
- Coverage validation procedures
- Capacity testing protocols
- Application performance benchmarks
- User acceptance testing guidelines

Ongoing Management

- Network monitoring recommendations
- Performance baseline documentation
- Change management procedures
- Optimization guidelines
- Capacity expansion planning
- Technology refresh roadmap

PERFORMANCE OPTIMIZATION STRATEGIES

Coverage Optimization

- Optimal AP placement based on building materials
- Appropriate power levels avoiding over-coverage
- Antenna selection and orientation
- Eliminating dead zones and weak spots
- Seamless roaming between access points

Capacity Management

- Right-sizing AP density for user loads
- OFDMA and MU-MIMO utilization
- Band steering (2.4 GHz to 5 GHz)
- Load balancing across access points
- Client steering for optimal connections

Interference Mitigation

- Non-overlapping channel planning
- Avoiding co-channel interference
- Spectrum analysis and rogue AP detection
- Coordination with neighboring networks
- Bluetooth and IoT device coexistence

Application Performance

- QoS policies for critical applications
- Voice and video traffic prioritization
- Bandwidth allocation and rate limiting
- Application visibility and control

- Deep packet inspection integration

SITE SURVEY TYPES

Predictive Site Survey

Pre-deployment RF modeling using building floor plans, construction materials, and planned AP locations. Provides preliminary design before equipment purchase. Cost-effective for planning and budgeting.

Passive Site Survey

Walking facility with survey tools measuring existing RF environment. Identifies coverage holes, interference sources, and signal quality. Essential for understanding current state and optimization.

Active Site Survey

Connecting to deployed network while walking coverage area, measuring throughput, latency, packet loss, and roaming performance. Validates design meets requirements and identifies issues.

Validation Survey

Post-deployment survey verifying network meets design specifications and performance requirements. Provides documentation for project acceptance and future baseline.

Predictive vs. Validation Comparison

Comparing predictive models to actual deployed performance. Identifies variances, validates modeling accuracy, and provides lessons learned for future projects.