

# AlvariSTAR™

## Carrier-Class NMS for Broadband Wireless Access Networks

- A comprehensive carrier-class Network Management System fully compliant with TMN standards
- Enables effective management of large and growing BWA networks
- Simplifies network deployment and maintenance to support rapid customer base expansion
- Effective fault management for quick detection, isolation, and resolution
- Comprehensive network visualization with geographical, logical and physical views
- Real-time monitoring and scheduled collection of traffic, performance and QoS statistics
- Extended security management capabilities
- Flexible architecture for diverse configurations





## Manage your Networks to the MAX

AlvariSTAR is a comprehensive, carrier-class network management system (NMS) for broadband wireless access networks. Designed for service provider and carrier network operation centers (NOCs), AlvariSTAR offers the full range of network surveillance, monitoring, configuration & fault management capabilities to maximize the effectiveness and efficiency, and minimize the cost of managing your BWA networks.

Embedded with the entire knowledge base of BWA network operations, AlvariSTAR is a power multiplier in the hands of a service provider, dramatically extending the ability to provide a rich portfolio of services, support rapid customer base expansion, and ensure customer satisfaction.

AlvariSTAR supports common network management applications in compliance with Telecommunications Management Network (TMN) standards, providing comprehensive fault, configuration, performance and security management functionality.

### Fault Management

AlvariSTAR supports fast and effective fault detection, isolation and resolution. With heartbeat monitoring and simple network management protocol (SNMP) trap notifications, AlvariSTAR supports real-time fault reporting and extensive view and management capabilities.



### Configuration Management

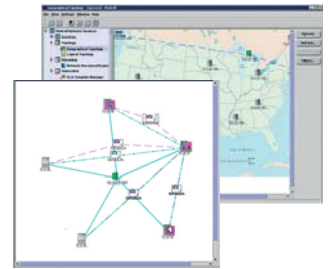
Equipped with comprehensive, easy-to-use configuration and provisioning tools, AlvariSTAR simplifies network deployment and maintenance. As a result, operators can easily scale their BWA networks to hundreds of base stations and thousands of customer terminals. Dividing the network into logical and hierarchical groups, enables network operators to perform common activities on multiple nodes simultaneously, or quickly drill down to a single network device for easy customization.



### Network View

AlvariSTAR offers a comprehensive network visualization supporting multiple views.

Geographical topology provides visual representation of the placement of managed network elements, with multi-zoom levels from regional network views down to the network element (NE). Logical topology shows visual representation of the links, interdependencies, and relationships among network devices. The physical topology provides visual representation of the actual device and any components residing inside. In addition, equipment locations can be managed according to region, cell or sector.



### Service Management

AlvariSTAR provides instant provisioning of subscriber services. Service provisioning simply requires matching the users with pre-defined service profiles that contain all configurations required to establish the different services. These service profiles are globally managed and distributed to the network by AlvariSTAR. Provisioning the service prior to CPE installation reduces installation overhead significantly with service automatically activated as the CPE is installed and authenticates itself.

### Performance Monitoring

AlvariSTAR supports real-time monitoring, as well as scheduled collection of over-the-air traffic load, wireless link performance data, and quality of service (QoS) statistics. The performance collection engine helps to identify problems and bottlenecks and optimize resource usage.



### Security Management

AlvariSTAR implements a multi-level access authorization. Network administrators can manage users and user groups by authorizing specific system functions for individual users and groups. Additionally, a network administrator can restrict management permission for specific network equipment to specific users or groups based on equipment location.

AlvariSTAR can be used to manage multiple products, including BreezeMAX™, BreezeACCESS® VL, BreezeNET® B & WALKair® thereby reducing equipment and operational costs.

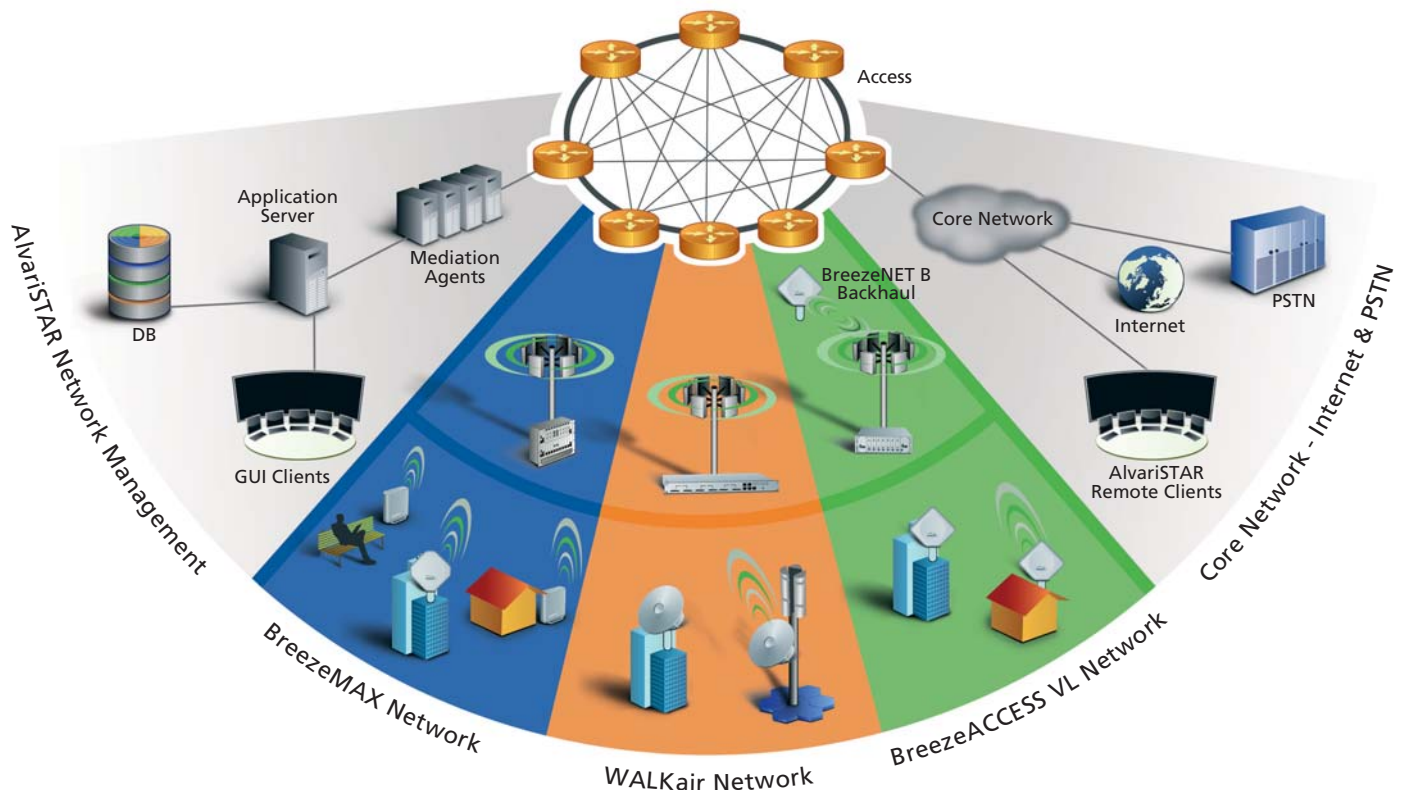
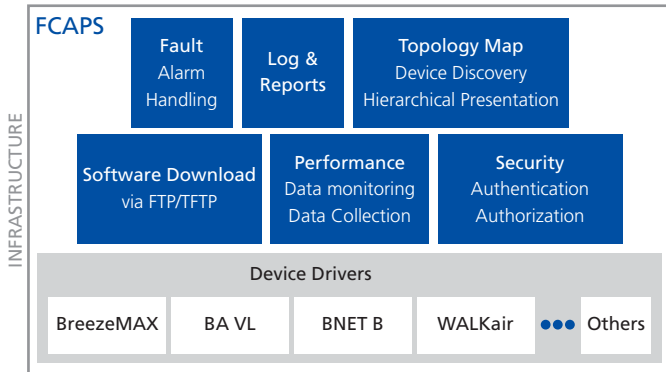


## System Architecture

AlvariSTAR is designed with a multi-layer architecture providing a common **infrastructure** over which one or more **device drivers** can be installed to service the various product lines (BreezeMAX, BreezeACCESS VL, WALKair).

The infrastructure layer provides common functionality, including inventory, faults, topology, software download, and performance data collection. The various device drivers enable configuration and service provisioning of the particular product line being managed.

The AlvariSTAR system is a client-server application, comprised of the following components: an **application server**, which coordinates all system components and communicates with managed sub-systems and network devices, **mediation agents**, which provide services for communication with external systems and devices (including a mediation mapper for MIBs), a **database** for storing network and business objects (such as devices, device configuration, locations, alarms, performance data etc.), and **GUI clients** for accessing AlvariSTAR management information and processes. AlvariSTAR's architecture is highly flexible, from a minimal "all-in-one" system with all components on the same computer, through entry-level system with several remote clients to a fully distributed systems.



## Specifications

### Fault Management

|  |   |
|--|---|
|  | Event logging                                       |
|  | Fault presentation on the map                       |
|  | Color-coding according to fault severity            |
|  | Fault filtering by various attributes               |
|  | Event correlation and suppression                   |
|  | Event forwarding to northbound managers             |
|  | Alarms acknowledgement                              |
|  | Event severity change                               |
|  | Automatic email initialization upon fault detection |
|  | Historical event queries                            |

### Configuration Management

|  |  |
|--|--|
|  | Auto-discovery of new or changed equipment |
|  | Multiple network-element configuration     |
|  | Inventory management                       |

### Software Download management

|  |  |
|--|--|
|  | Efficient software upgrade management for multiple network elements        |
|  | Scheduled execution (to manage peak hours)                                 |
|  | Automatic invocation of device oriented operations (e.g. boot from shadow) |

### Network view

|  |  |
|--|--|
|  | Geographical Topology                                    |
|  | Multi zoom levels from regional network views down to NE |
|  | Logical topology   |
|  | Physical topology  |
|  | Locations management by regions, cells and sectors       |
|  | Automatic or manual association of devices to locations  |

### Service Management

|  |   |
|--|---|
|  | Service profile management and distribution   |
|  | Fast service provisioning   |
|  | Service configuration prior to CPE installation - service activated automatically on installation |

### Performance Management

|  |   |
|--|---|
|  | Real-time performance monitoring (and graphing) |
|  | Scheduled collection of performance statistics  |
|  | Over-the-air traffic load statistics            |
|  | Wireless link performance data                  |
|  | Quality of service statistics                   |

### Security Management

|  |  |
|--|--|
|  | Multi-level access authorization                       |
|  | Users and user groups management                       |
|  | Functional authorization per users and user groups     |
|  | Location-based authorization per users and user groups |

### Architecture

|  |  |
|--|--|
|  | Distributed client-server architecture. Multiple clients can access AlvariSTAR management information and processes. |
|--|--|

### Operating Systems

|  |                  |
|--|------------------|
|  | Windows, Solaris |
|--|------------------|

### Database

|  |                        |
|--|------------------------|
|  | Oracle, Versant, MySQL |
|--|------------------------|

### Order Information

|  |   |
|--|---|
|  | PN 715000: AlvariSTAR Infrastructure (required)                   |
|  | PN 715001: BreezeMAX Device Driver (optional)                     |
|  | PN 715002: BreezeACCESS VL & BreezeNET B Device Driver (optional) |
|  | PN 715003: WALKair 1000 Device Driver (optional)                  |
|  | Management licenses per BST & CPE network elements                |

Note: Some of the features above may be product dependent