



Broadband Wireless Access

Systems

Integration

Services

Multimedia Applications

- Internet Delivery
- Video Delivery (Videoconferencing, Broadcast, On-demand)
- TDM Voice, VoIP, ATM (Gateways, Constraint-based Routing)
- Call Management, Signaling (SS7, H.323, SIP, MGCP, MEGACO)

Operational Support System (OSS)

Traffic Management and Element Management System (EMS)

- SLA Agent
- Quality of Service (QoS) Measurement
- Element Management System (EMS)

Backhauling and Switching

CPE Interfaces and Service Provisioning

- Adapting to Various Interfaces (ISDN, POTS, V.35, ATM, FR)

NMS (Network Management System) and Business Management

- Fault Management
- Trouble Ticketing
- Billing
- Statistics
- Service Level Agreement Management (SLAM)

For more than 40 years, Harris has leveraged its expertise in reliable wireless network design and implementation to deliver dependable, cost-effective transmission capabilities to customers worldwide. Continuing in this tradition, Harris offers a complete solution to service providers seeking flexible and economical means for achieving high-speed last-mile access. The new Harris ClearBurst™ product platform, enables worldwide Carriers, Internet Service Providers, Local Exchange Carriers, Interexchange Carriers, and Private Network Operators around the world to provide multi-service applications to businesses and home offices.

Harris understands that these applications may require third-party vendor equipment as well as specific functionality constraints. Therefore Harris' goal in providing a complete system integration service is to ensure that the integration of third-party equipment with Harris equipment is simplified for you. Harris' System Integration Team is responsible for providing quality solutions that seamlessly integrate new products into new or existing Broadband Wireless Access networks.



Multimedia Applications

Real-time applications such as multimedia audio and video are increasingly popular. To support the execution of these applications in conjunction with traditional non real-time applications, Harris has established partnerships with third-party multimedia Manufacturers and Applications Developers.

■ Internet Delivery

In the new world of the Internet super-highway, Harris' ClearBurst™ provides high-speed Internet access that gives you the bandwidth required for rapid file transfer and multimedia applications.

■ Video Delivery (Videoconferencing, Broadcast, On-demand)

Within the radio and television market, Harris is the leader in advanced transmitter equipment and systems for digital television (DTV) and digital broadcast equipment in North America. Harris is the leader in digital encoding for radio and television systems and provides studio systems integration for broadcast companies worldwide. The company distributes more than 10,000 different studio products, and provides custom-integrated fixed and mobile systems to broadcasters throughout the world.

Using the BWA services, Harris can provide adequate networking with broadband capacity that allows broadcasters to exchange video data between studios and other bandwidth demanding applications including the capture and distribution of high quality television video to the highly-compressed digital video formats required for Internet display. Harris' BWA architecture can also support videoconferencing services and future video-on-demand applications.

■ TDM Voice, VoIP, ATM (Gateways, Constraint-based Routing)

Harris recognizes that building a complete solution for BWA Access, implementing interfaces with Switched Virtual Paths (SVPs) in ATM-based networks or Constraint-based Routing Label Switched Paths (CRLSPs) in IP-based networks is critical. Harris has long-lasting partnerships with approved OEMs manufacturing gateways and other Network Elements necessary for incorporating applications such as VoIP on all Harris BWA networks.

Harris' unique packetized TDM over-the-air solutions for voice services like POTS and E1/T1, provide an efficient and highly realistic approach to offer toll-quality voice.

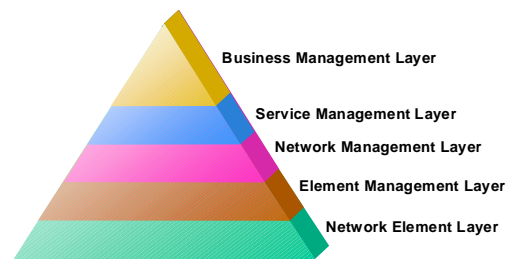
■ Call Management, Signaling (SS7, H.323, SIP, MGCP, MEGACO)

Harris also has the expertise to establish which Call Management Signaling scheme is best suited for your application. Depending on your specifications or subscriber market trend, Harris' System Integration team may propose the H.323 protocol versus the SIP protocol. In fact, given that the two standards currently compete for the dominance of IP telephony signaling, Harris can help you decide on which is most appropriate to meet your needs. Furthermore, Harris will implement the call management schemes according to up-to-date industry standards.

This means that Harris ensures and helps you implement your call management signaling system according to specified QoS, scalability and interoperability.

Operational Support System (OSS)

Modern communication network operators identified the Operational Support System (OSS) as the glue that binds all necessary components to enable delivery of high-value next generation applications. Many benefits for the service providers are derived from OSS presence including low cost to deliver differentiated services, customers retaining high marginal and enforceable services at low incremental costs.



Traffic Management and Element Management Systems (EMS)

Harris' Systems Integration Team can provide traffic shaping and traffic management systems. In addition, we provide the engineering services you need to install and configure your network elements management system. We'll help you define your requirements, and offer engineering services from setting up workstations to creating custom graphics and scripts.

Once the system is installed and thoroughly tested, we can provide training on how to use the different tools to enhance, monitor and control capabilities as your network grows. Or, if you prefer, our engineers are available to implement these enhancements.

■ SLA Agent

Harris implements the class-based queuing traffic management philosophy. That method takes into account the service profile of each subscriber's or application's virtual pipe determined by its SLA policy. Harris can implement hierarchical policies in order to address different domains that can each have their own policies.

■ Quality of Service (QoS) Measurement

Harris provides methods of collecting Quality of Service parameters with the NetBoss™ management tool. NetBoss™ is more than just another piece of the network puzzle. It's the only integrated communications management platform that supports wireless, wireline and Internet services while providing everything you need to manage, streamline and automate management and operation functions.

NetBoss™ is the integrated solution that allows you to get new products faster at a competitive cost. It also streamlines many

current processes so you can optimize the performance efficiency capability and profitability of your existing network.

Harris also designs and implements Traffic Management solutions with partners while keeping in mind important issues such as:

- Subscriber Privacy
- Application Security
- Traffic Cache

■ Element Management System (EMS)

Harris StarView™ Element Manager provides an elegant Element Management solution to the total package in areas of fault management, collection station, alarm filtering and forwarding capacity. StarView's highly graphical hierarchical based user interface provides regional support and direct contact to the BWA equipment. StarView's many capabilities include alarm logging, alarm filtering and alarm forwarding. It also provides the tools needed to pro-actively manage the BWA systems from a Windows® 2000 workstation.

StarView™ also allows you to communicate directly with the BWA equipment via embedded SNMP agents and Java applets. It is a powerful tracking system with overlapping regional capabilities so you can easily monitor your entire network. A few features include;

- Graphical interface.
- Network status that allows up-to-the-minute feedback on network performance.
- Alarm status for immediate feedback on your networks health.
- Local and remote connectivity with Harris radios.
- On-line help for easy access to StarView™ operation information.

Easy to navigate graphical interface provides access to all your network components. You can easily navigate through your network to view entire segments or individual nodes. StarView™ provides customizable interface that allows you to change backgrounds, icons, menus, toolbars and shortcuts.

Network status is instantly available through the high level network submap and alarm log. Users can view radio events by severity and then pass the information onto other StarView™ or Network Management systems in the network.

StarView™ includes remote operational capability using the Internet via Web Browser or Pager. It also operates on Windows® NT and is based on Hewlett-Packard's Network Node Manager. On-line user documentation is available at your fingertips.

Backhauling and Switching

Harris BWA Systems Integration Team can design and implement low to high capacity microwave paths in order to address the wireless backhaul requirements of broadband service carriers, cellular carriers, business, government institutions and utilities.

Harris has the expertise to facilitate the process of interfacing existing isolated networks to the BWA backbone. This includes Point-to-Multipoint to backbone and PSTN and ISP Connections. Harris can help you with the integration of routers, ATM switches and terminal servers.

Given that Harris BWA systems will be primarily installed on rooftops of enterprises and businesses, Harris is developing in-building distribution solutions that incorporate DSL modems, LAN routers and network elements, DSLAM, cable modems and other distribution equipment that may be requested by you for your particular application.

CPE Interfaces and Service Provisioning

The new world of service providers is faced with the challenge to provision increasingly complex interfaces for voice and data services. The qualified team of engineers at Harris can adapt your system to various logical interfaces. Key capabilities of service provisioning system include rapid definition and deployment of new services, maintenance of the integrity of a service, order across a complex set of systems and foremost, the ability to link diverse architectures and a broad range of vendor products seamlessly.

■ Adapting to Various Interfaces (ISDN, POTS, V.35, ATM, FR)

Through solid data networking expertise and ever-growing OEM partnerships, Harris' ClearBurst multi-interface capabilities can be expanded to accommodate a vast array of transport and telecommunication services.

Network Management System (NMS) and Business Management

NetBoss™, developed by Harris' Network Support Division, is the industry's first and only integrated communications management platform. With NetBoss™ you have a single, integrated platform that lets you create, expedite and manage any type of communications service - wireline, wireless or Internet - while reducing your network administration and service implementation costs. NetBoss™ is designed to support the industry's most comprehensive set of capabilities, each of which can be added in a modular fashion.

Manage.IT is the NetBoss™ bundled network management solution. It features an extensive library of Smart-Agents configured for easy implementation into any network. Manage.IT is a flexible, scalable network management system, offering you real-time information that allows easy adaptation to changing network conditions helping you maximize your ROI. For ease of operation, the module offers customizable graphical representations of your network hierarchy down to the event level. It also features a common user interface to create total heterogeneous network integration regardless of the native operating system (Unix X Window, NT Client or Java).

As you would expect from an industry-leader, Harris has designed NetBoss™ as an off-the-shelf solution that's rapidly deployed, resulting in an increased return on your investment. Because NetBoss™ is modular, you can implement our comprehensive set of capabilities at once or individually, as your needs dictate. Harris helps you win your business efficiently by integrating the Fault Management, Trouble Ticketing, Billing, Statistics and SLAM capabilities you need.

The entire NetBoss™ suite is backed by Harris' full array of professional support services, from installation and customization to testing and training. We can provide full turnkey services, or any level of customized support you may require.

Multi-Service Broadband Wireless Access Solutions

Convergence of Microwave and Networking Technologies

