



# Big Pipe

## High Bandwidth STL Link for Radio

### This is not your father's STL

The rollout of HD Radio™, more frequent collocation of multiple stations and other factors often demand more efficient STL solutions with greater bandwidth and bidirectional capability. While existing wireless and terrestrial studio-to-transmitter links (STLs) remain appropriate program and data transport choices, many radio stations and networks are seeking new options.

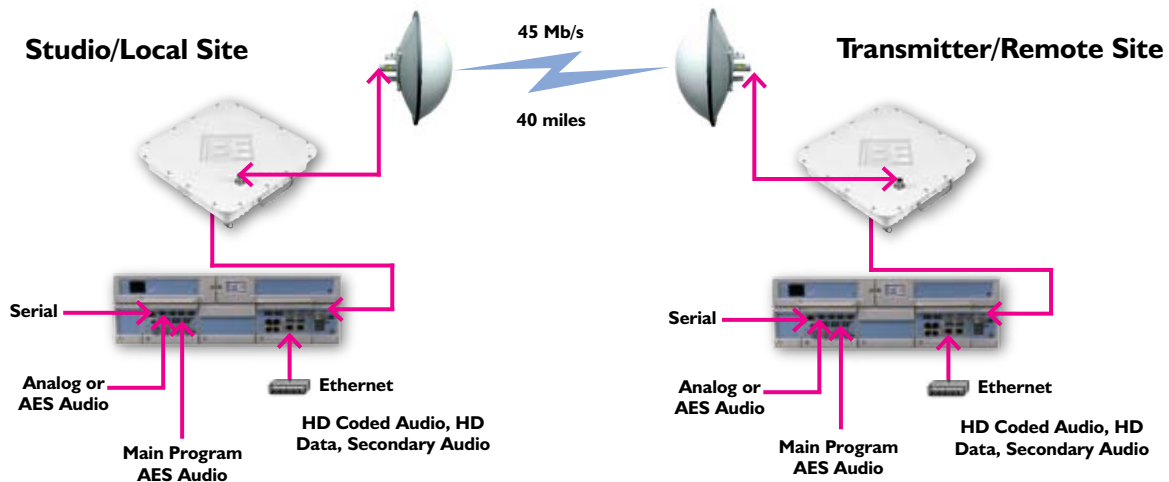
Enter Big Pipe™, the perfect candidate for all point-to-point STL applications where increased capacity and maximum flexibility are desired. Scalable, flexible and reliable, Big Pipe also works well for studio-to-studio interconnects and many other media and data transport needs.

With up to 45 Mb/s bandwidth, Big Pipe has the capability to deliver your main channel audio at full 44.1 kHz or 48 kHz sampling rates, HD Radio coded audio, HD Radio Secondary Program Services and advanced HD Radio data services for multiple transmitters—while additionally providing Ethernet connectivity, serial data, video and telephone connections to your remote site via wireless or wireline path. Big Pipe's bidirectional link eliminates the need for separate telemetry, communications and backhaul links.

Big Pipe simplifies integration among the mission-critical, high-value elements of your facilities and, because it comes from BE, you know that Big Pipe is designed for the realities of radio, including tight budgets and the requirement for rock solid performance. You can confidently buy the equipment you need today, while reducing the risks of rapid obsolescence or unpredictable expenses in the future.

### Key Product Features

- Scalable and flexible to meet the STL, studio-to-studio and other media and data transport needs of radio broadcasters
- Up to 45Mbps bidirectional connectivity allowing integration of multiple services into one product—as much as 20 times the capacity of typical STLs for broadcast radio
- Ethernet connectivity for current and anticipated HD Radio program and data services is standard in all configurations
- Bidirectional point-to-point microwave radios for wireless applications
- Multiple hop systems may be used to connect any number of facilities
- Network Terminals multiplex media content and data for wireless and wireline facility interconnection
- Un-licensed solutions, operating in the 5.3 GHz and 5.8 GHz bands, can be deployed in a matter of hours allowing quick and reliable service





### Choices for all your content and data transport needs

The Big Pipe system consists of microwave radios and data-conversion network interfaces that are designed to work together, but may be used independently based on your application.

The microwave radios operate in the 5.3 GHz or 5.8 GHz frequency bands allowing rapid deployment. The radios come equipped with external antenna connectivity, which is selected based on path length.

The microwave radios interface to the site Network Terminal equipment that is configured with a number of plug-in Service Interface Modules (SIM). These media and data input/output options provide a wide range of multiplexed configurations depending on your needs. Modules are hot-pluggable for easy installation, upgrade or repair.

For systems where only Ethernet is transported, the Ethernet connection may be made directly to the microwave radios with no further interface. Conversely, the Network Terminal units may be used to multiplex media and data for transport over terrestrial services.

### Big Pipe Network Terminal Equipment BP 400 INT—Integrated Network Terminal

- Mainframe chassis for Service Interface Modules (SIM) modules for media and data input/output
- Equipped standard with:
  - Power supply and fan modules
  - BP 400 NAU Network Access Unit with multiple data interfaces
    - Dual ATM ports at the DS3 level for interfacing with network or Big Pipe microwave radios
    - Four DS1 TDM ports, each able to interface with a T1 circuit
    - Ethernet port (100BaseT)
    - Test port for local diagnostics
    - Integrated loopbacks and alarming
- Hot-swappable architecture, supports two additional SIMs
- Frame may be daisy-chained for additional configuration capabilities
- In-band remote and local craft management
- Multi-gigabit backplane capable of processing multiple high bandwidth signals
- Supports numerous network configurations and off-the-shelf network hardware
- OC-3 (155 Mb/s) and OC-12C (622 Mb/s) fiber interfaces optionally available





## BP 400 ASIM—Audio and Data Service Interface Module

- One input channel configurable for analog or composite audio
- One output channel configurable for analog or composite audio
- Two stereo AES/EBU digital audio—one side of path configured as input, the other as output
- RS-232 serial channel



## BP 400 VSIM—Audio and Video Service Interface Module

- One input channel of MPEG-compressed video
- One output channel of MPEG-compressed video
- Two input channels of MPEG-compressed analog audio
- Two output channels of MPEG-compressed analog audio
- SMPTE 310 optionally available



## BP 100 VSIM—Audio and Video Service Interface Module

- One input channel of MPEG-compressed video
- One output channel of MPEG-compressed video
- Two input channels of uncompressed analog audio
- Two output channels of uncompressed analog audio



## BP 400 DSI—DSI/TDM Interface Module

- Eight DSI ports
- Able to interface with T1 circuits





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### Big Pipe Microwave Radio BP 4500

- Up to 45 Mb/s, full-duplex throughput
- Range up to 40 miles in 5.8 GHz ISM band
- Range up to 7 miles in 5.3 GHz UNII band
- 16 QAM modulation allows up to 12 collocated radios without interference
- Software selectable interface mode
  - DS3 (45 Mb/s)
  - Ethernet interface (100BaseT)
- SNMP, RS-232, HTTP, FTP and Telnet interfaces provide ease of configuration, installation and operation
- Choice of antenna configuration
  - Up to 8' antenna, larger available for special applications
  - Connector for external antenna
- Mounts directly and easily on tower or pole for minimal cable loss
- Built-in bit error rate tester (BERT) for local and far-end loopback testing
- Constructed to meet the demands of radio broadcasters
  - Weatherproof unit for outdoor applications
  - -30° to +65° C operational temperature range
  - 99.999% uptime meets or exceeds wireline capability
  - Low parts count results in Mean Time Between Failure (MTBF) of greater than seven years



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