This presentation introduces the latest and upcoming Magellan DPN-100 and Magellan Access Switch (MAS) technology, services and features. Enhancements advancing DPN-100's access capabilities are highlighted. Also in this session, future enhancements are discussed.

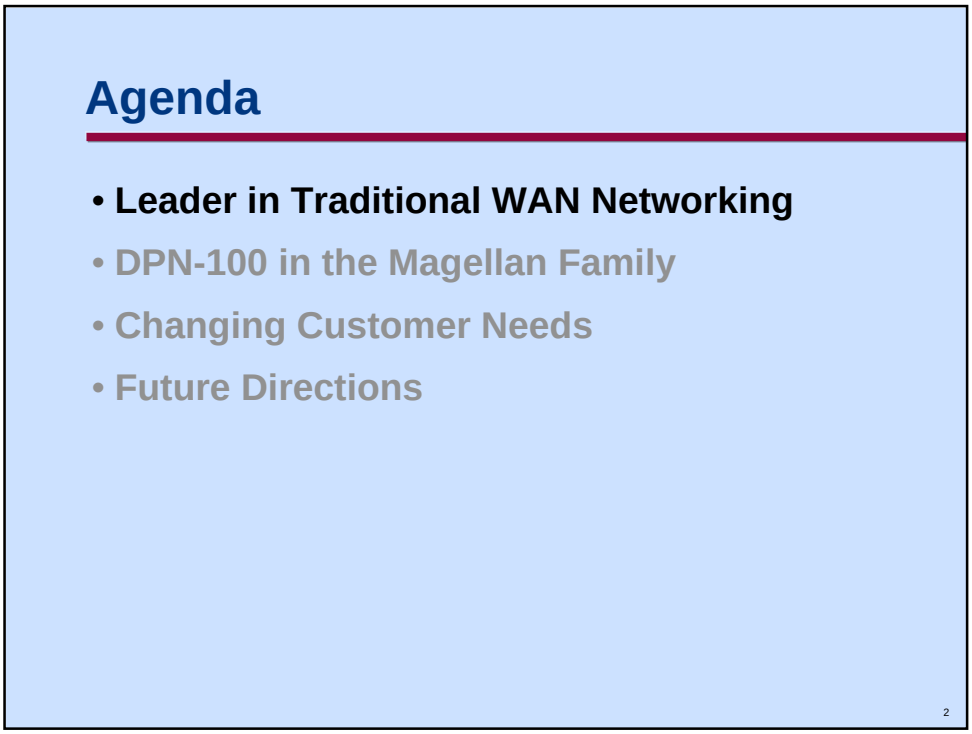
This presentation will update customers on the state of the market served by DPN-100 and the Magellan Access Switch and discuss where that market is heading. It also shows how DPN-100 continues to evolve in response to the needs of our customers. Finally it communicates Nortel's upcoming features and future directions for DPN-100.

It is targeted for both planning and technical representatives of Magellan DPN-100 and Magellan Access Switch customers.

About the presenter:

Steve Lappan is a Magellan access product manager responsible for DPN-100 access evolution. He has more than 10 years experience with Nortel's data networking products, serving in roles including technical support, technical training, product deployment and product management. He recently spent 3 1/2 years in Frankfurt, Germany, managing pre- and post-sales support for European Magellan customers.

Steve holds a Bachelor of Science degree in Electrical Engineering from Queen's University, Kingston, and is a member of the Professional Engineers of Ontario.



This presentation highlights Magellan's role in the traditional WAN data market, and shows how DPN-100 is evolving to satisfy network operators' needs in this area.

In particular, focus is placed on the themes of:

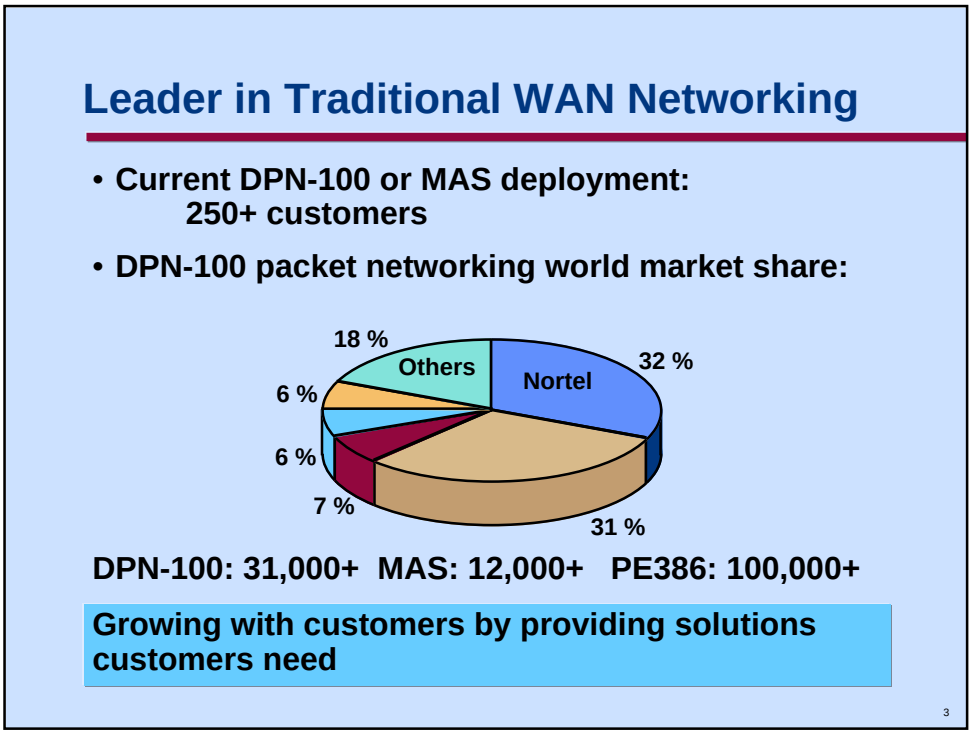
1) expanding both reach and service offerings;

2) reducing costs; and

3) increasing efficiency through related product offerings.

Slides outlining future directions conclude the presentation.

Additionally, a set of handout slides contain the DPN-100 and Magellan Access Switch feature rollout schedule.



DPN-100, as both an infrastructure and access service platform, continues as the most successful member of the Magellan family. In fact, 1995 saw very strong growth for Magellan in both DPN-100 and Magellan Access Switch, so much so that these represent Magellan's most successful product line.

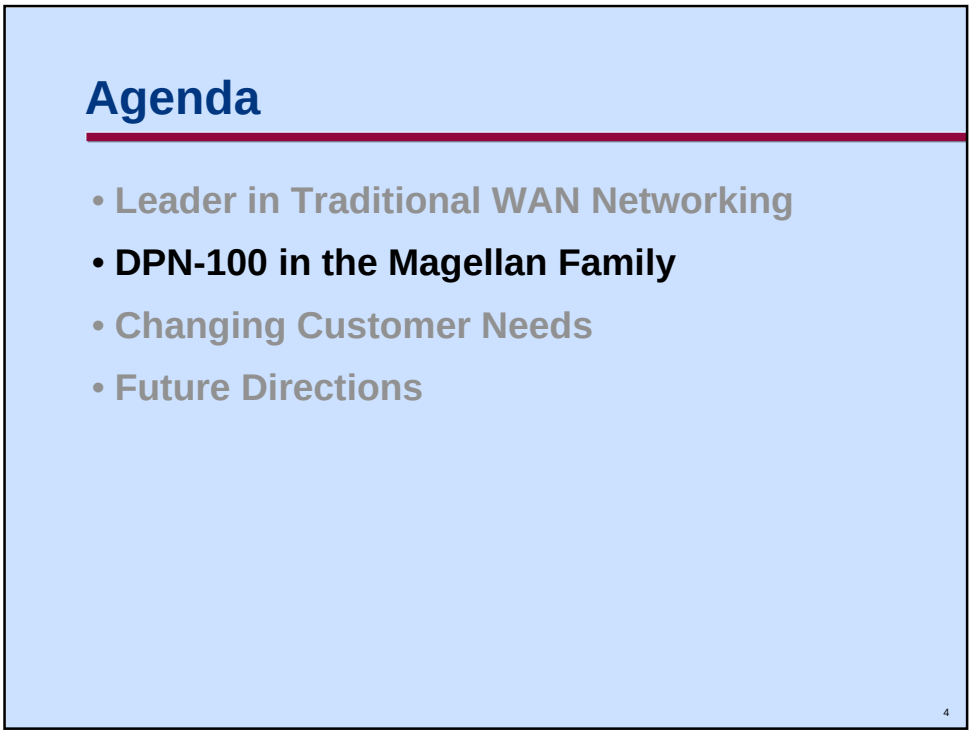
As a measure of DPN-100 success, consider the following:

As of February 1996, Nortel serves more than 250 customers of DPN-100 and Magellan Access Switch, a number that has doubled in less than two years.

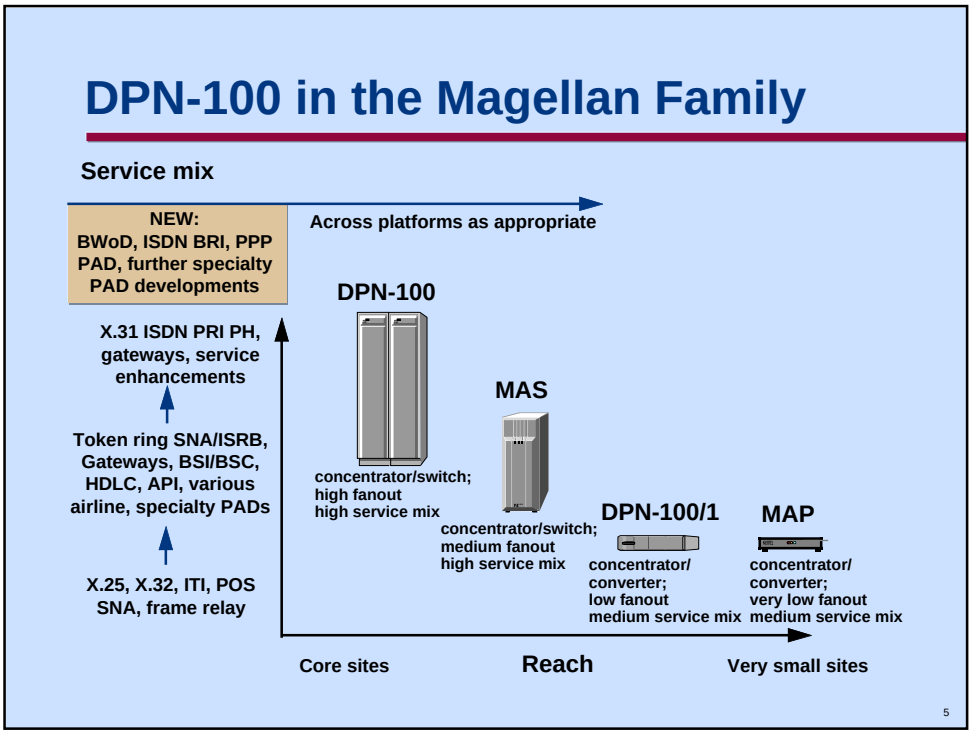
According to the latest survey of the worldwide packet-switching backbone market by the market research firm Dataquest, published March 1996, Nortel's DPN-100 family was the market leader in 1995. This result is particularly impressive, given that Dataquest excluded both the Magellan Access Switch and DPN-100/1 from this category. In 1995, Nortel shipped over 7,300 Magellan Access Switches and 2,800 DPN-100/1.

As of March 1996, Nortel has shipped over 14,000 AM or RM shelves, 3,400 DPN-100/5, 14,000 DPN-100/1 and almost 12,000 Magellan Access Switch units. In addition, Nortel shipped the 100,000th PE 386 in December 1995. Nortel has shipped more than 700 high performance PEs in the four months following its December 1995 introduction.

Nortel is committed to the continued growth and evolution in DPN-100, and sees a strong role for this platform in the years to come. The market need for enhanced value-added PAD functions and new applications within a packet-based network continues to grow.



The following slide shows how DPN-100 fits within a Magellan networking environment.

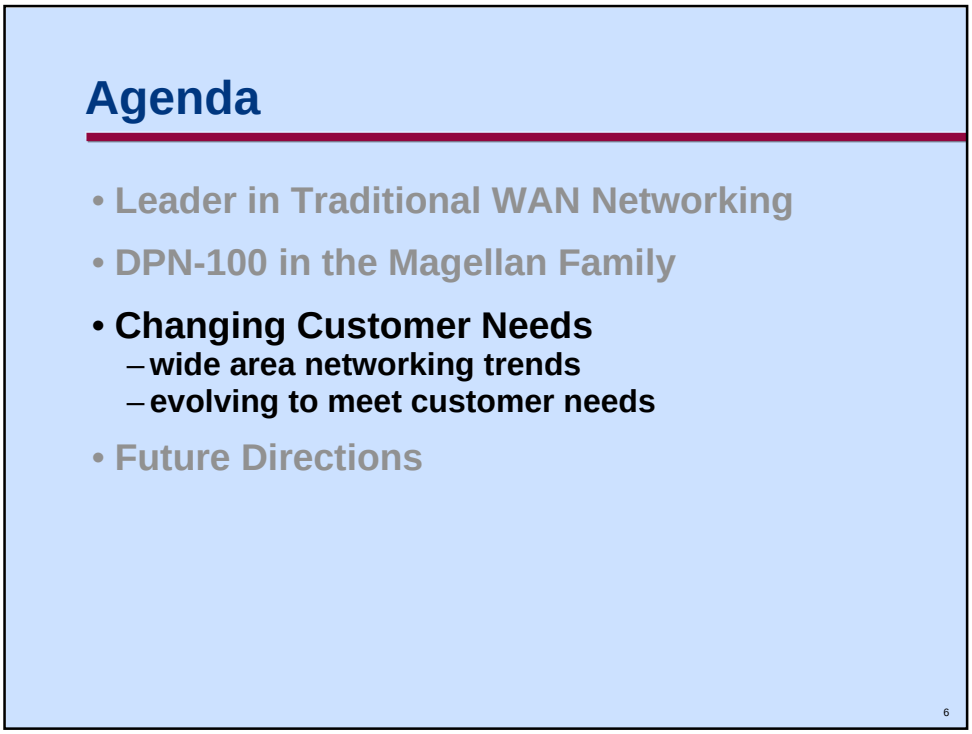


The Magellan family is becoming increasingly diverse as Nortel moves to cover all aspects of multimedia communications across many market segments. Nortel does so by both introducing new platforms and enhancing existing platforms. This continues to apply to DPN-100 and the Magellan Access Switch.

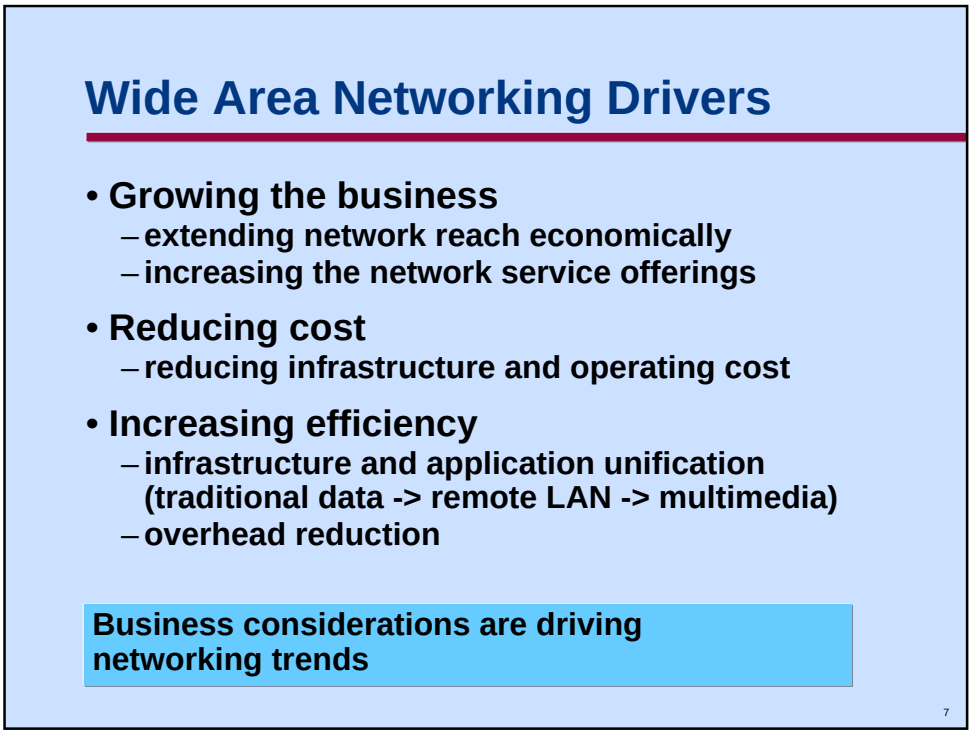
DPN-100 originated to serve the traditional WAN market, and continues to do so. To serve smaller market areas more economically, Nortel introduced the Magellan Access Switch. This module extends network reach where DPN-100 previously did not economically fit, while maintaining the Magellan capabilities. Similarly DPN-100/1 extends Magellan yet more economically, and the new Magellan Access PAD (MAP) module takes this another step further.

At the same time, enhancements to DPN-100 and Magellan Access Switch extend functionality and fit beyond traditional WAN networking. Full frame relay support, both as an access service (to connect DTEs such as FRADs and routers) and as a transport method (to interconnect modules across public frame relay networks instead of leased lines) is an example of this. Similarly, DPN-100 continues to evolve in the area of transporting non-traditional WAN traffic, such as IP or other encapsulated LAN traffic. This will be expanded on later in this presentation.

Where overlap in functionality between DPN-100, Magellan Access Switch, Passport model 160 and Passport model 50 exists, the choice of which platform to use depends on a number of factors. Some of these include the service mix and fanout requirements, the speed of connectivity, and the overall performance requirements.



Following are a couple of key drivers in wide area networking, and how Nortel is responding to them.

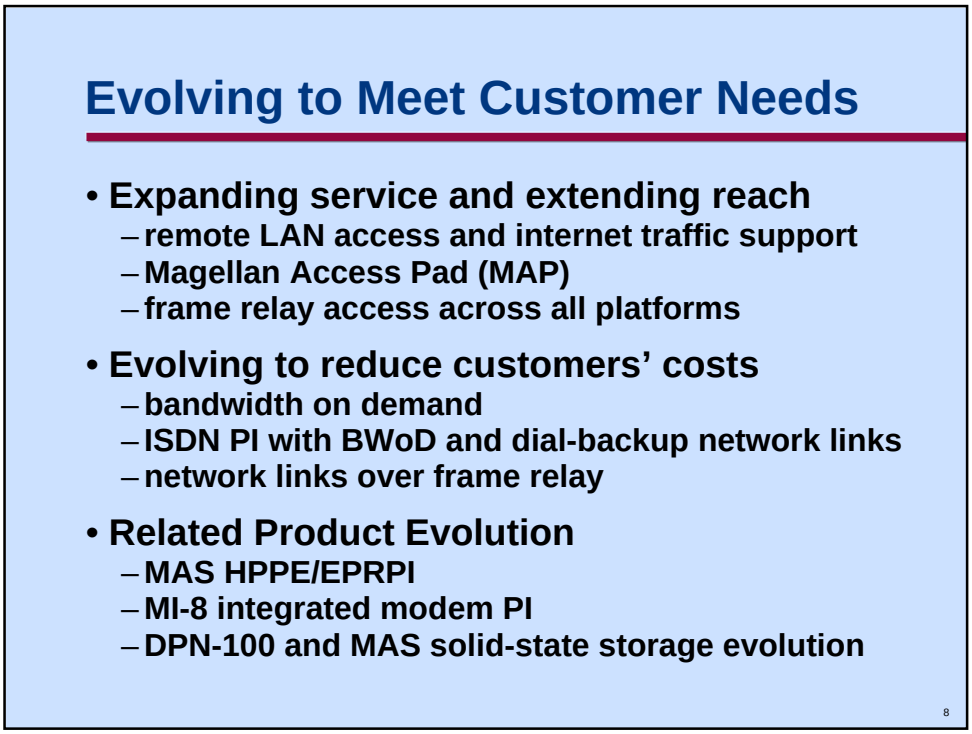


Goals in networking are driven by business needs. A network must provide desired services to extended communities of interest, and do so as cost-effectively as possible.

Network expansion is driven by the need to reach geographically dispersed users with a variety of services. This expansion either generates additional revenue or displaces more expensive ways of communicating. Often both are achieved. Networking is extended, either by serving markets in geographic areas that weren't previously economically reachable, or by serving market segments with new traffic types. A good networking solution helps grow the business.

A continuing driver in networking is the reduction in infrastructure and operating cost. The fundamentals are simple economics. MIS and networking budgets generally aren't growing, yet traffic continues to explode. In service provider markets around the world, increased competition is pressuring providers to reduce costs.

Unification of the technology base serves both business needs. When effectively done, this allows a corporation or service provider to expand its offerings without expanding the organization to support them. The easiest way to do so is to select a networking provider who is able to expand existing capabilities and grow with the organization. Then, there is no need to overlay separate, incompatible network types to cover key traffic types, with the extra support and management burden that comes with such overlays. By working with a single provider providing major networking solutions, network operators gain extra functionality without requiring the same degree of additional overhead and management.



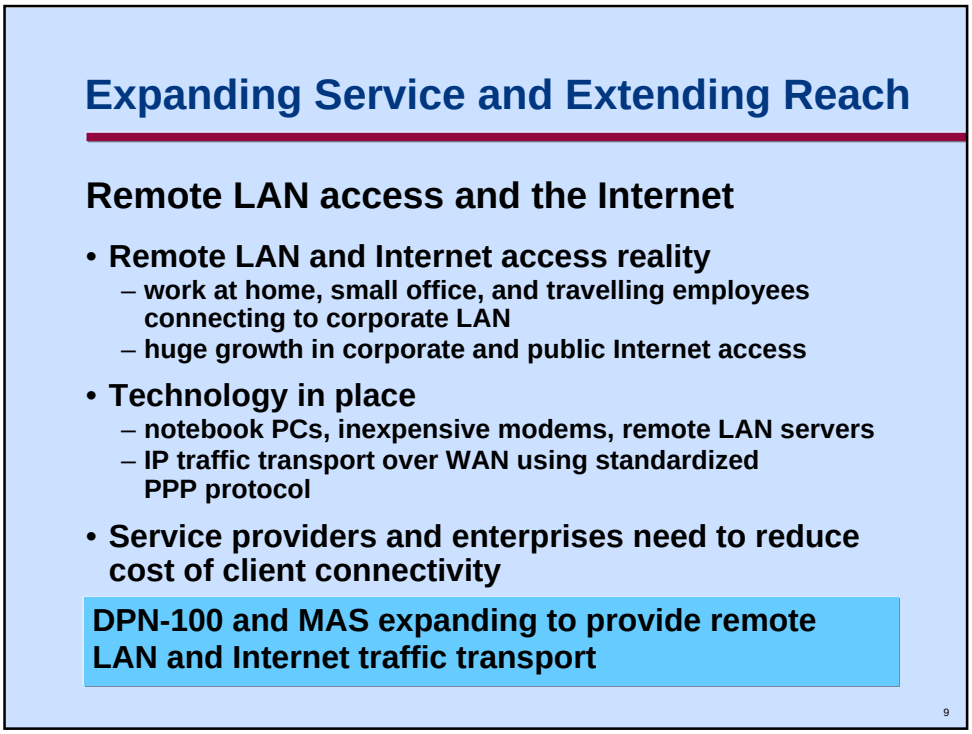
This section highlights several business-driven initiatives that Magellan is developing.

In terms of service expansion and extension of reach, this presentation highlights three thrusts in particular.

In the area of cost reduction, a number of capabilities that assist in achieving this goal are introduced.

Finally, several related product evolution thrusts geared to enhancing the capabilities and value of a Magellan DPN-100 network are introduced.

Note that this is not all of the DPN-100 improvements for 1996. To get a flavor of the improvements in 1996 for DPN-100 and Magellan Access Switch, refer to the rollout slides distributed as a handout.

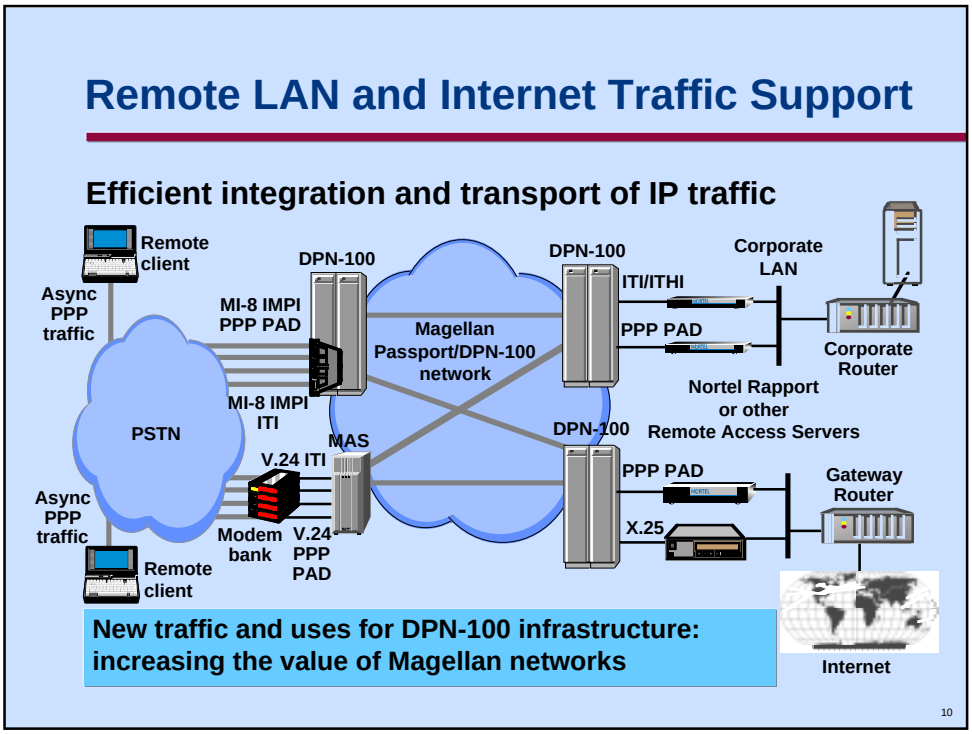


A whole new market has emerged in the last couple of years, driven by the requirement to link remote users to corporate LANs and the Internet. The remote LAN access (RLA) market consists of users either at home or in small offices connecting to corporate LAN facilities. At remote locations, notebook PCs with client software running the point-to-point (PPP) protocol send IP datagrams out the internal modem across the PSTN. Terminal servers or remote access servers terminate PPP and sends the IP datagrams into either the corporate WAN or an Internet gateway router.

At the same time, Internet service providers (ISPs) have come into their own, providing dial (or dedicated) users access to the Internet via their gateways. This commercial service is available to individuals and corporations, and uses essentially the same technology mentioned above.

Both service providers and enterprises need to create appropriate networking solutions to fill these needs. While certain technologies emerged with the served market (remote access servers and client software), the basic networking needs remain: economical, reliable access linking them. A primary issue is the cost of connectivity between the remote user and the remote access server at the LAN environment.

Nortel and Magellan provides solutions to meet these needs. By using DPN-100 and Magellan Access Switch, network operators can vastly shorten the PSTN component of the PPP path, and thus reduce or eliminate PSTN charges. DPN-100 and Magellan Access Switch do so by taking in and transporting remote PPP traffic across Magellan infrastructure.

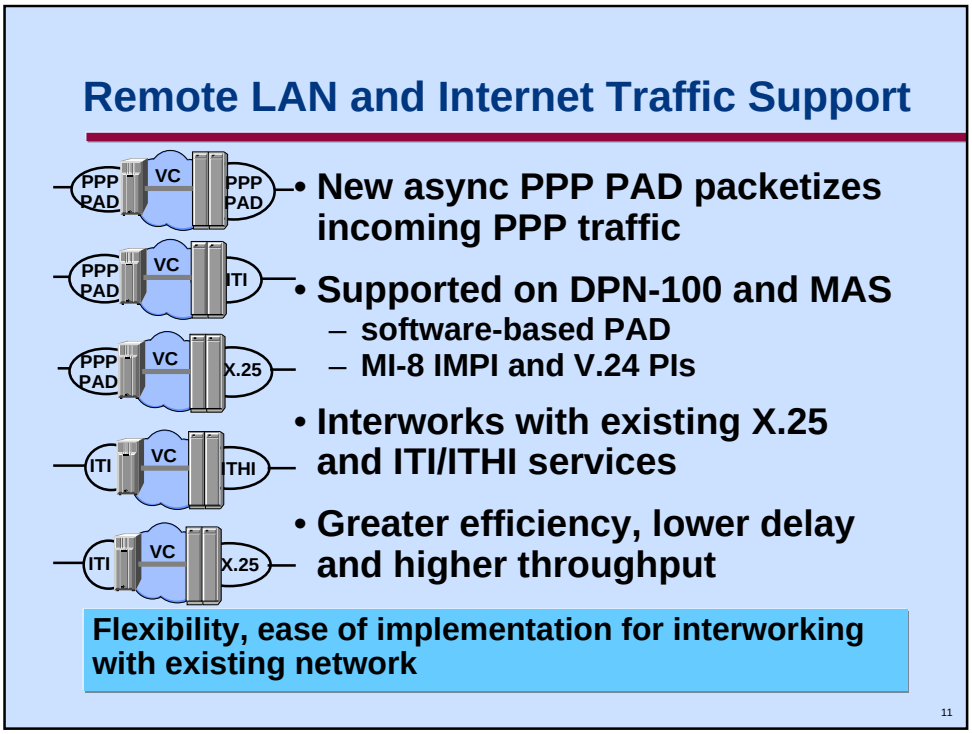


Typically, both ISPs and enterprises rely on the PSTN to connect the user to the remote LAN access device. This incurs long distance charges when the clients are not near the remote access servers. One solution is to provide toll-free PSTN access, but the PSTN administrator charges the network operator for each call. Alternatively, operators may locate a multitude of remote access servers at various POPs to ensure that PSTN calls are local, but that is at the cost of more servers than the traffic may warrant.

Magellan already provides a solution today using existing services on DPN-100 and Magellan Access Switch. Remote client traffic on a local PSTN segment enters ITI (X.3/X.28/X.29) ports on a nearby module via either the MI-8 integrated modem PI or V.24 interfaces with external modems. This traffic traverses the long-haul portion of the route over the Magellan infrastructure (where costs are based on the volume of data sent, not distance). At the central sites, a nearby module hands this traffic off via ITHI or X.25 to remote access servers, including Nortel's Rapport family of dial-up switches.

Magellan network operators are taking advantage of their infrastructure in this way. DPN-100 networks provide a dial access platform, linking an ISP's customers via PSTN to the ISP's servers. Clients call into the ITI service via MI-8 integrated modem PIs and are routed to a high speed X.25 port on PRPIs attached to remote access servers.

In a significant enhancement to the above capabilities on DPN-100 and Magellan Access Switch, Nortel introduces an async PPP PAD service on the MI-8 integrated modem PI and V.24 PIs. This service increases the efficiency of Magellan's interworking with PPP protocol streams, and is described more fully on the next slide.



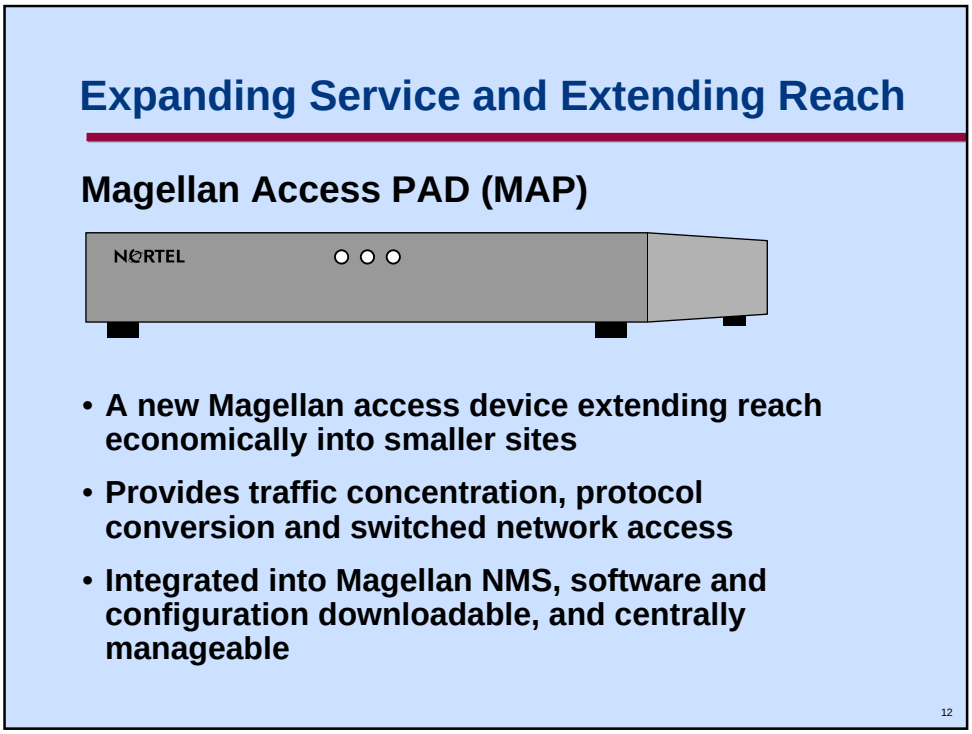
The new async PPP PAD service is a software feature built on the existing ITI PE/PI platforms for both DPN-100 and Magellan Access Switch. This service interworks with the existing ITI/ITHI and X.25 services. The PE386 supports the PPP PAD on the MI-8 integrated modem PI and all V.24 interfaces on other PIs. It is configured via service data, and can coexist with regular ITI ports on the same PI on both DPN-100 and Magellan Access Switch.

The PPP PAD is optimized to receive async PPP traffic from the PSTN. It recognizes PPP frames and packetizes them onto an internal virtual circuit (VC) upon receipt of the end of frame delimiter ("7E" flag). In addition, the PAD discards any incoming non-data frames (typically idle "7E" flags generated by PPP).

Planned availability for the async PPP PAD for trial is Aug. 96 (G3502), with general availability in Nov. 96 (G3503).

The existing DPN-100 PPP interworking capability (ITI to ITHI, and ITI to X.25) gives Magellan network operators the ability to leverage existing infrastructure to reduce the cost of an overall solution. Operators can locate fewer remote access servers in proximity to Magellan modules. They may then use the reach and fanout of DPN-100 and Magellan Access Switch to cost-effectively concentrate remote users. The MI-8 integrated modem PI lends itself very well as a dial-in platform for this.

The addition of the PPP service increases the value of this offering through increased efficiency and reduced access delay. This leads to higher overall throughput. Where a DPN-100 infrastructure exists, these capabilities allow a network operator to expand overall business at a minimal cost, and keep down associated infrastructure costs.



Nortel introduces a new small access module in the Magellan family named the Magellan Access PAD (MAP). It offers Magellan switching capabilities at a competitive PAD price. MAP was initially introduced in the European market in 4Q95, and is now available globally.

MAP is a five port module that can be used as a concentrator for low-speed traffic, a protocol converter, or an access device utilizing local switching for general Magellan network access. It supports the most popular DPN-100 service protocols. It suits the needs of retail outlets, financial institutions, or any remote site requiring relatively low speed network access at a competitive price.

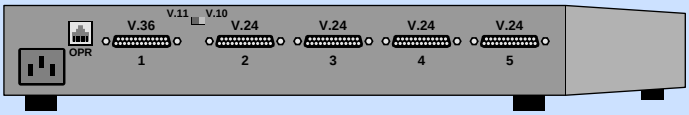
MAP extends Magellan's reach into points of presence with one to four devices, and is applicable in locations where the DPN-100/1's nine access ports aren't warranted. With MAP, the overall cost of ownership of a Magellan network is reduced while overall service flexibility into small locations is increased.

MAP is a fully integrated Magellan module, supported via Magellan's NMS platform. Operating software and configuration files are downloaded from a central network management site into solid-state FLASH memory in the unit. The stored configuration is maintained for up to seven days without power. It is designed for ease of installation and commissioning, and never requires a trained technician on site.

Due to its service simplicity and lack of maintenance requirements, MAP is ideally suited for use as customer premises equipment. It brings Magellan's services and networking benefits to the smallest locations cost-effectively.

Expanding Service and Extending Reach

MAP details



- **One high-speed DTE/DCE V.36/X.21/V.35 interworking port supporting network connectivity**
- **Four V.24 DTE/DCE ports supporting access services and network connectivity**

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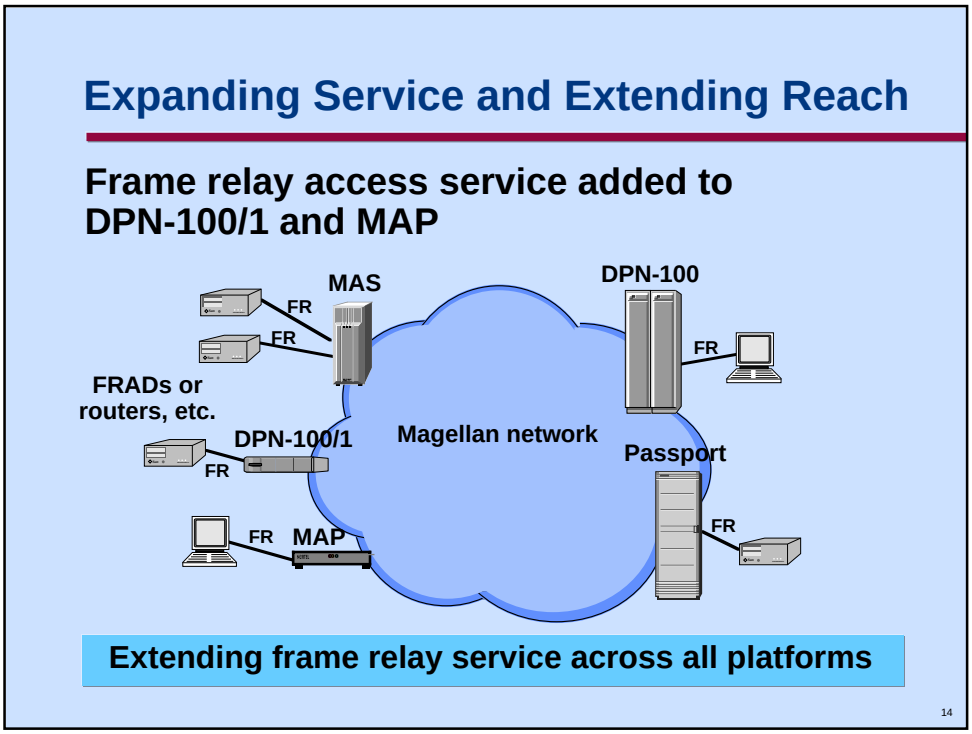
MAP provides one V.36 (with X.21 or V.35 interworking via a cable option) port at up to 64 kbit/s. The port is software DTE/DCE selectable. It provides network connectivity via UTP netlinks, frame relay netlinks or DPN Padlink (X.25 gateway netlink).

MAP also provides four V.24 software DTE/DCE selectable ports at up to 19.2 kbit/s. These ports support the X.25, ITI, SNA, X.32 or frame relay access services. They may also be configured to provide network connectivity as per the V.36 port. In addition, these ports may be configured to support dial-backup network links and bandwidth on demand network links.

An operator port with a RJ-45 jack is also provided. This port is optionally utilized during commissioning, and is normally not used beyond that. The unit autosenses on 100-240 Vac, 50-60 Hz power, supplied via a standard power cord. Three LED lamps on the front panel convey status of a major failure, the presence of power and the detection of network connectivity.

Throughput is similar to that of the existing DPN-100/1.

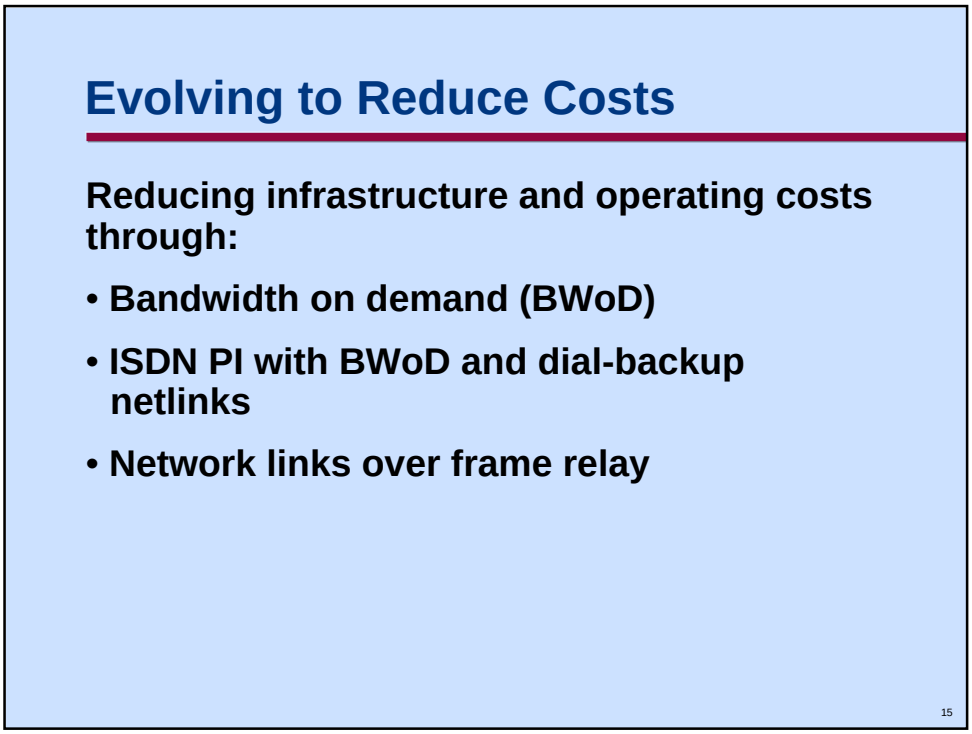
The Magellan Access PAD is a high quality, high reliability low fanout access module combining the strengths of Magellan DPN-100 networking in a small package.



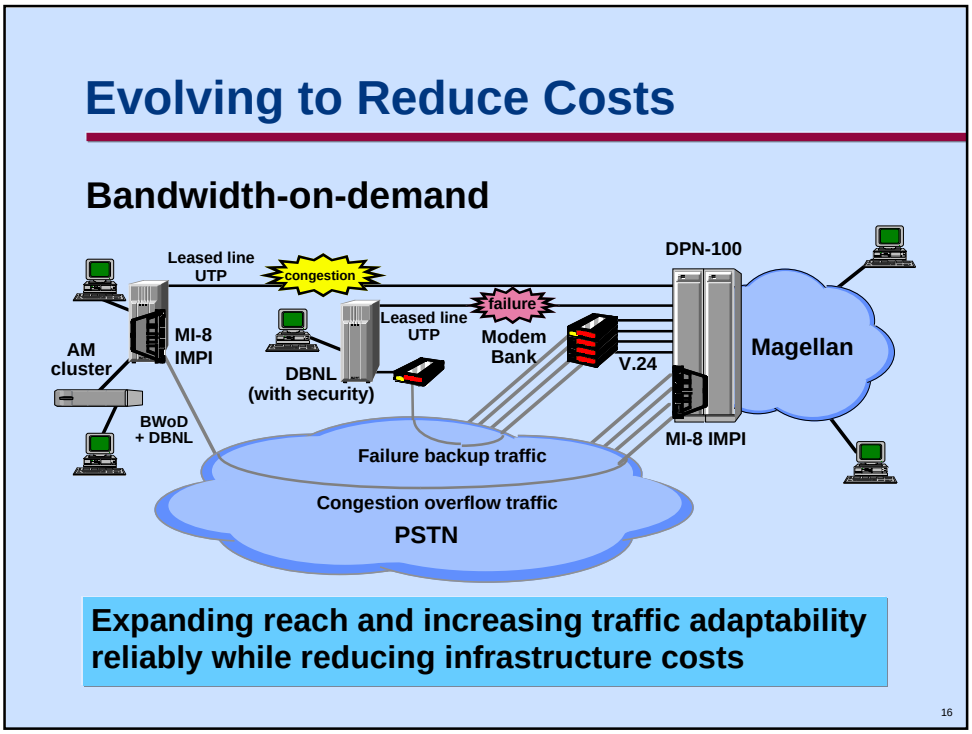
Nortel recognizes the interest of our customers desiring further service offerings in a unified manner across platforms. With the increasing importance of frame relay and proliferation of frame relay devices, Nortel has increased its offering of frame relay services. Now, every member of the Magellan family supports the frame relay access service. This includes UNI or NNI in DTE or DCE mode.

Combined with frame relay egress accounting and service traceability on each platform, Magellan offers a complete service, fully manageable from a central site.

With Magellan frame relay, both service provider and enterprise customers have a wide choice of platform, speed and performance for frame relay and other services, with full interworking and manageability. In general, DPN-100-based frame relay is well-suited for multi-protocol environments with local frame relay devices. Passport-based frame relay is well-suited for high-concentration or high-performance frame relay environments. The various members of the Magellan family economically anchor all types of frame relay environments.



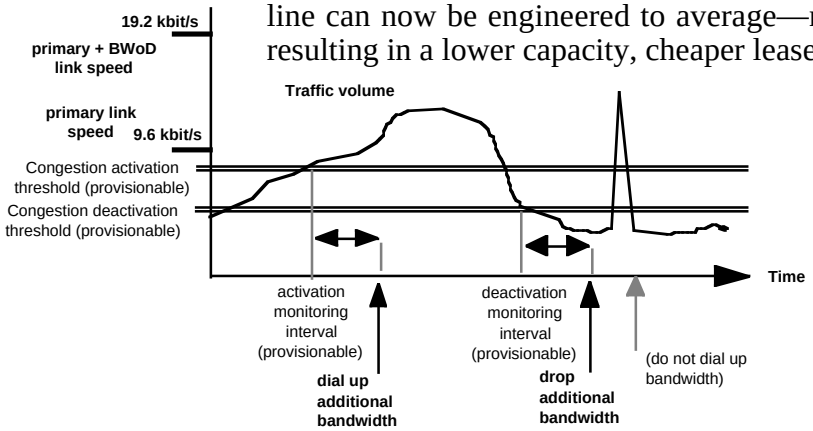
Magellan DPN-100 continues to evolve to meet our customers' need for more cost-effective networking. The following section provides details on new developments to achieve this. Bandwidth on demand (BWoD) UTP network links, in conjunction with existing dial-backup netlinks on existing PIs, is introduced. A new platform, the ISDN PI, is introduced to accomplish BWoD and DBNL functionality across public ISDN basic rate facilities. Finally, the rollout of UTP network links over frame relay facilities is completed across all members of the DPN-100 and Magellan Access Switch platforms.

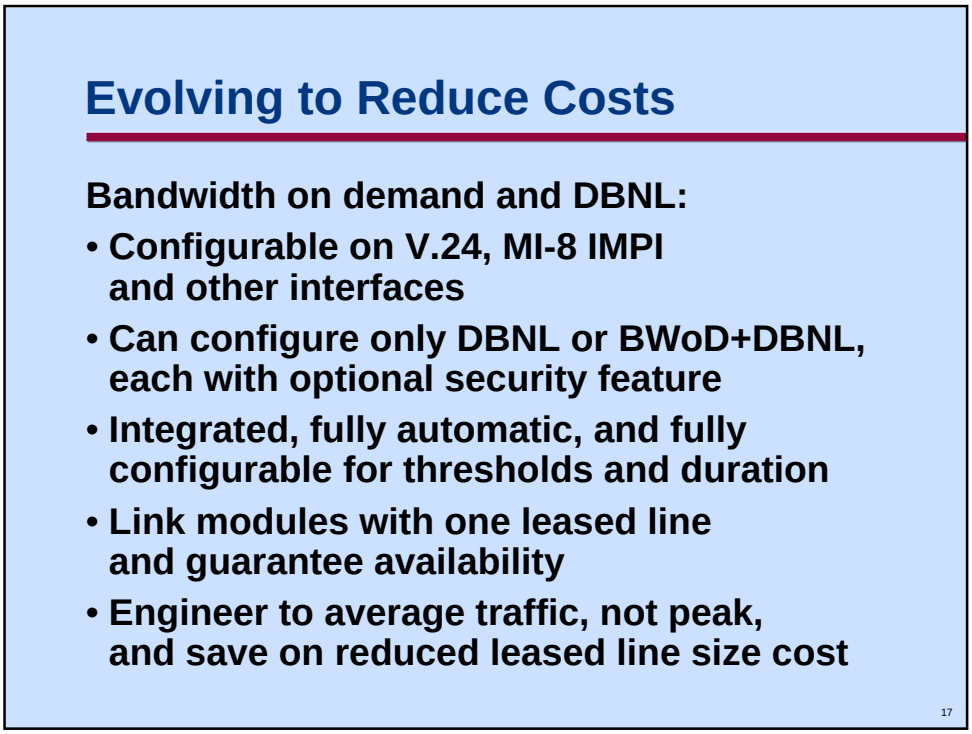


Although Magellan modules save networking costs through concentration of attached device traffic, network operators remain concerned with the total cost of fixed leased lines interconnecting all these modules. Until now, each module required a leased line sized to handle peak traffic. If line availability is paramount, a second leased line is typically added for redundancy purposes.

To eliminate redundant leased line cost, dial-backup network links (DBNL) were introduced in 1993 to provide an alternate link in case of primary link failure. DBNL security was enhanced in 1995 with the addition of pre-provisioned passwords, to be verified at connection time. As a further significant enhancement, Magellan introduces bandwidth on demand (BWoD) network links.

Customers now have greater flexibility of locating modules with little regard to both unexpected surges in traffic and failure of the leased facility. The single permanent leased line can now be engineered to average—not peak—traffic loads, often resulting in a lower capacity, cheaper leased line. Further, excess increments of traffic can be tolerated, reducing flow-control or throttling of user traffic. This gives networks planners more "breathing space" in planning facility upgrades, where required longer term.



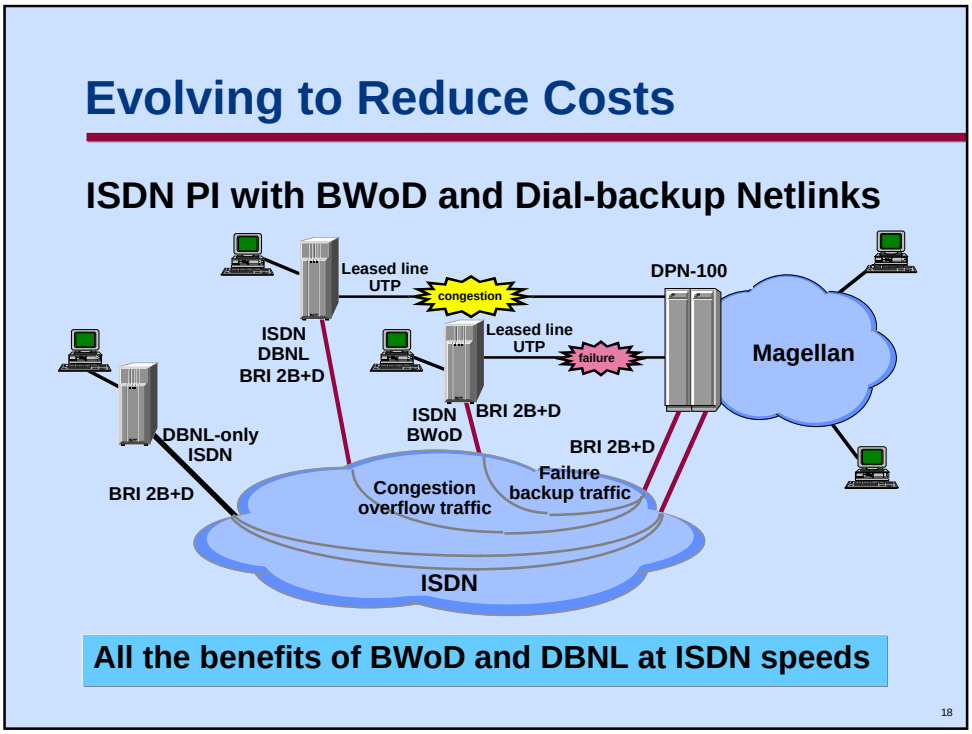


BWoD and DBNL netlinks are both software developments on the UTP protocol. They are supported across DPN-100 and Magellan Access Switch. Essentially, this development supports any interface that can signal an attached modem to call through the PSTN (or an attached ISDN terminal adapter to call through the ISDN network). Physical interfaces supported include all V.24, MI-8 IMPI, V.35 and X.21.

For each module where BWoD or DBNL functionality is desired, a DBNL or BWoD+ DBNL netlink port is configured. A corresponding UTP dial-in netlink port is defined on the desired destination module (typically RM or top-level AM). Monitoring and activation of BWoD is handled by the affected module itself, as is deactivation. When the module detects primary UTP leased line failure detection, it dials out using an available DBNL port over the PSTN to the destination dial-in port. This port optionally checks the password of the calling link against its own. Under other circumstances, when the module detects primary UTP leased line congestion, it dials out using an available BWoD port to the destination dial-in port, also with optional link password verification.

BWoD is fully integrated into both switch software and network management. It is provisioned via Magellan NMS. Customers may provision in service data the congestion activation threshold, the duration of high utilization before activation, the congestion deactivation threshold, and the duration of low utilization before activation. This is illustrated on the previous slide's notes page. The NMS Adviser tools are able to display a DBNL and BWoD netlink uniquely compared to a leased line-attached UTP network link.

This feature provides unprecedented flexibility in locating modules with a single leased line, sized to average traffic patterns, while ensuring availability and avoiding congestion.

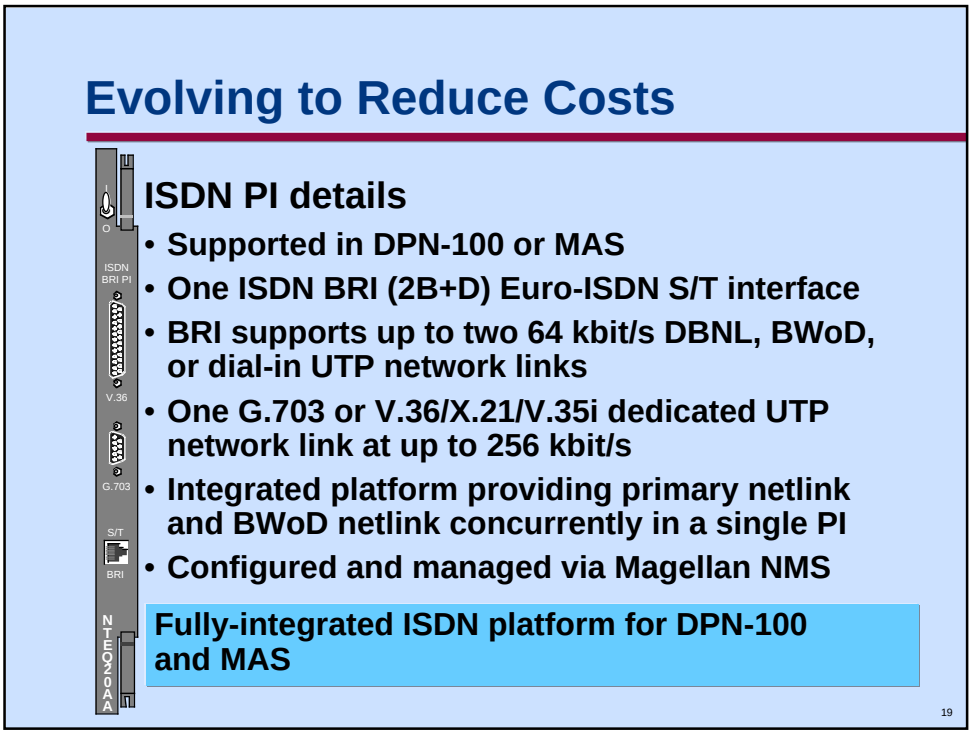


ISDN networking is increasing in both availability and usage. An ISDN basic rate interface (BRI) provides two 64 kbit/s “B” user channels and one 16 kbit/s “D” signalling channel. The B-channels, are switched, and can be “dialled” and dropped as required. ISDN is increasingly used in North America for dial applications including remote LAN access and Internet access. In Europe, where the service is universal and more mature, ISDN is also used as a leased-line alternative.

Nortel is introducing ISDN basic rate support on DPN-100 and Magellan Access Switch, to take advantage of the ISDN infrastructure in Europe. The initial offering of this PI is aimed specifically at European DPN-100 and Magellan Access Switch customers. (Customer need for a version applicable to the North American ISDN environment is currently under evaluation.) This PI operates in conjunction with the UTP BWoD and DBNL netlink service. The configuration and operation concepts are similar to those outlined in the previous bandwidth on demand charts. The ISDN-specific details are outlined in the following slide.

Note that the possibility exists to provide a DBNL-only ISDN netlink with no leased line primary netlink. While commissioning temporarily requires a dedicated netlink, the module can run indefinitely after commissioning as a DBNL netlink.

Utilizing ISDN for BWoD and DBNL connectivity brings two distinct advantages over analog modem-based BWoD and DBNL: setup rate and bandwidth. With ISDN, a B-channel can be switched in within several seconds, and each B-channel provides an error-free full 64 kbit/s netlink. ISDN DBNL and BWoD depend on service availability, which is high across Europe. DBNL and BWoD using analog modems across a PSTN, as described in previous slides, are suited for locations where ISDN is not available, or where a low-cost solution supporting lower-speed connectivity is desired.



Up to two ISDN PIs are supported by a single PE386 in both DPN-100 and Magellan Access Switch.

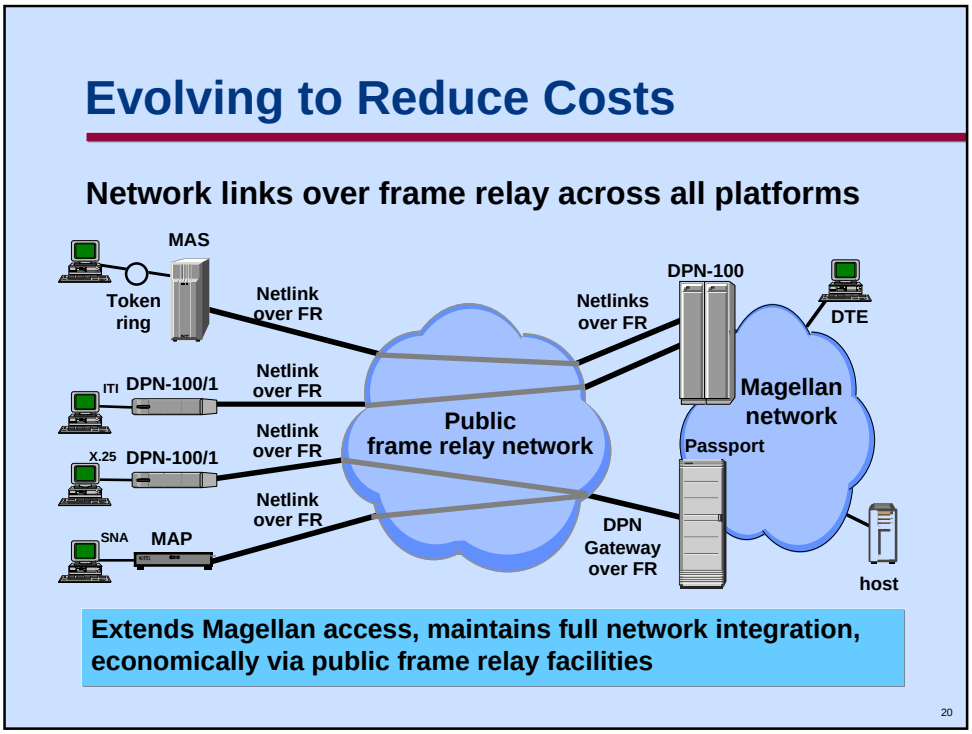
The faceplate has a V.36 (with X.21 or V.35 interworking via cable options) port, a G.703/DSMX port, and an ISDN BRI S/T interface RJ-45 jack. Depending on the version ordered, either the V.36 port or the G.703 port is active, but not both. The G.703 or V.36 port is DCE/DTE software selectable and supports dedicated UTP network link at up to 256 kbit/s. The ISDN port is configured as either BWoD, DBNL+BWoD or dial-in UTP network link. In each case, either only one B-channel netlink or two B-channel netlinks can be configured. The D-channel (16 kbit/s) is reserved for ISDN signalling. With all ports fully operating, the ISDN PI can terminate three UTP netlinks concurrently; one dedicated at up to 256 kbit/s and two BWoD and/or DBNL at 64 kbit/s.

This PI is fully integrated into Magellan NMS. Service data is configured via NMS Architect and downloaded to the controlling PE. The service is centrally managed via NMS Advisor, and appropriate statistics, alarms and accounting records are generated.

A remote Magellan Access Switch or DPN-100 module in a cluster with an ISDN PI configured monitors the primary netlink for either failure or congestion. Upon detecting these conditions, an ISDN call is placed to a DPN-100 module at the top of the cluster, where a similar ISDN PI is configured as a dial-in UTP netlink. The activation and deactivation criteria are selectable in service data in the same manner described in the previous BWoD slides.

Field trial release is planned for 4Q96, with general availability planned for late 4Q96.

This PI provides a fully integrated high-reliability solution for both existing and new Magellan locations, bringing DBNL and BWoD where ISDN facilities exist.



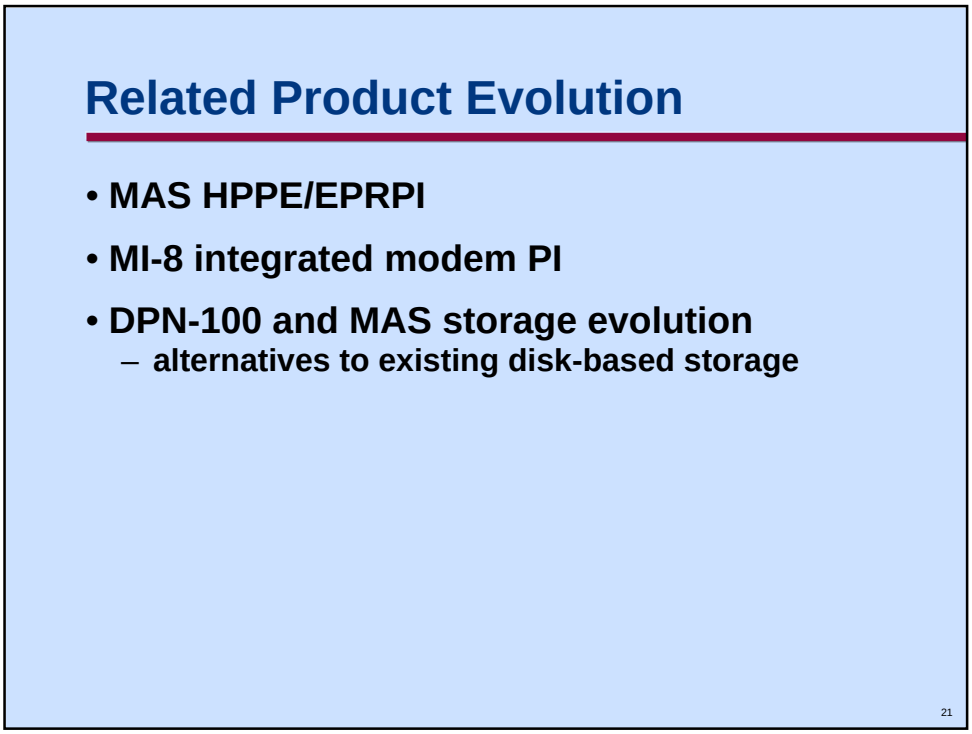
Frame relay has become an established alternative to leased lines for data transport throughout the world. Cost savings versus leased lines range from 25-50% in North America.

Within this environment, Magellan provides DPN-100 and Magellan Access Switch with the ability to take advantage of frame relay economics. This capability has been further rolled out on DPN-100/1 and MAP. Network links over frame relay is supported on all V.24, V.35, X.21, V.36 and primary rate interfaces. It is also supported on the four-port G.703 PI.

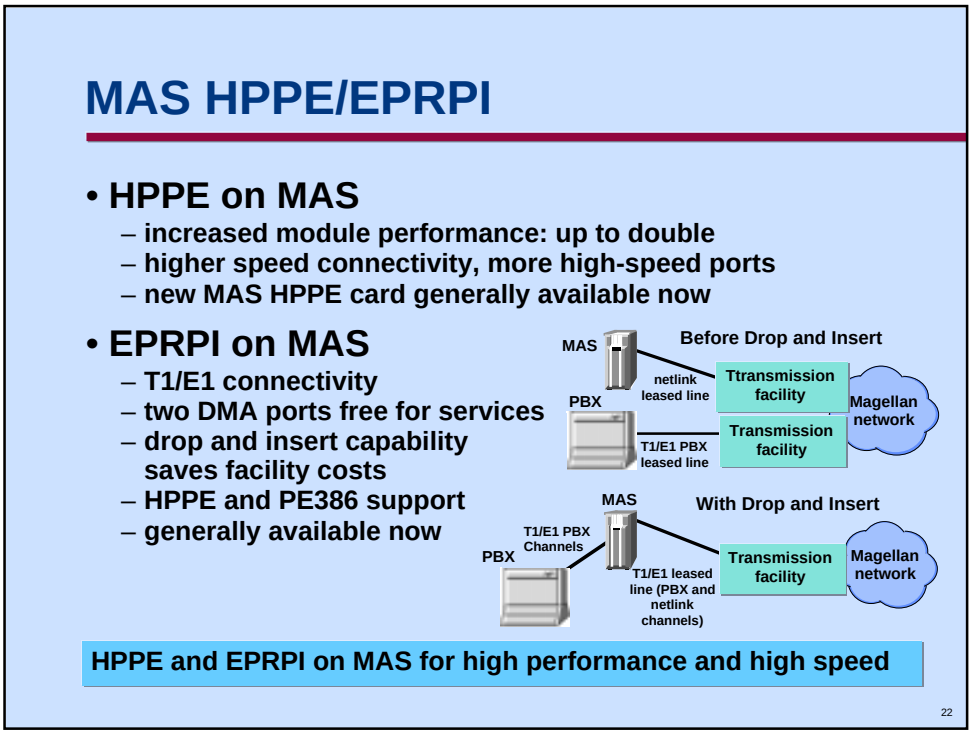
Netlinks over frame relay provides the ability to interconnect DPN-100, Magellan Access Switch, DPN-100/1, MAP and Passport modules utilizing a public or private frame relay network. Passport further allows multiple UTP netlinks to be terminated on a single frame relay port utilizing multiple DLCIs, providing additional fan-in compared to DPN-100.

All the advantages of leased line UTP network link connectivity are maintained. The modules are fully subnetted, and maintain all capabilities, such as Multiple Priority System (MPS) routing, even though transport is via a third party's frame relay network.

This development leverages the economics of frame relay versus leased lines for module interconnection, saving facilities costs. Also, when DPN-100 and Magellan Access Switch modules fan-in to Passport using Passport's multiple-DLCI capability, extra saving in both facilities costs and cost per Passport port are realized, due to a reduced number of physical interfaces.



Further to the themes of extending reach, adding services and reducing cost, Nortel introduces related product evolution thrusts. The high-performance processor element (HPPE) and enhanced primary rate peripheral interface (EPR PI) are rolled out on the Magellan Access Switch. The MI-8 integrated modem PI is introduced into live service and its capabilities enhanced. A solid-state alternative to rotating disk storage is announced.



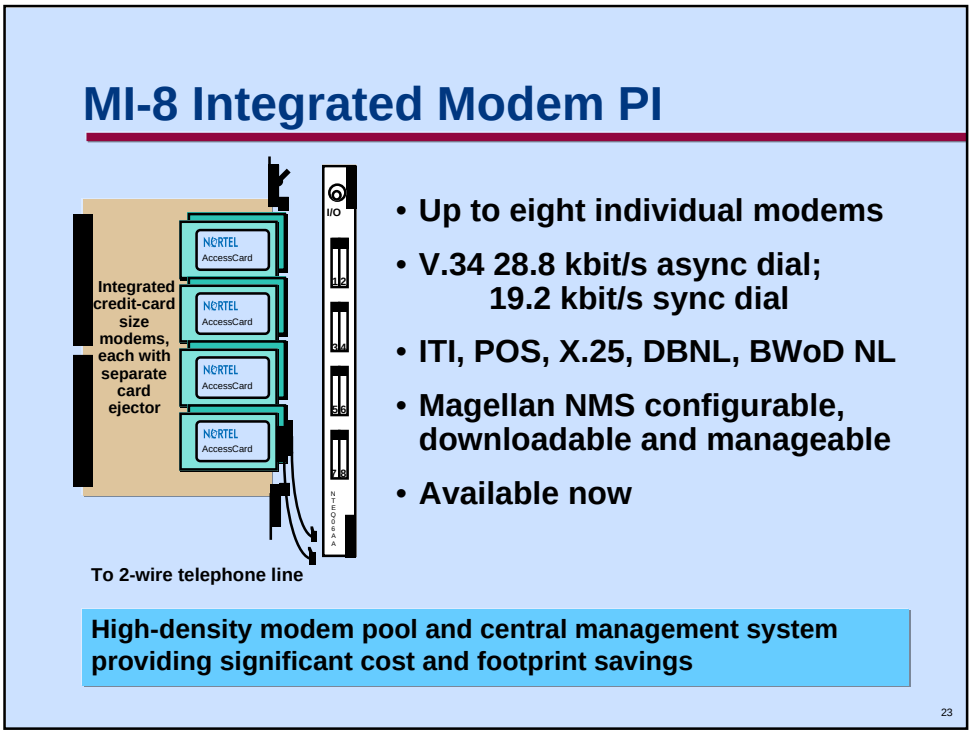
Magellan Access Switch is enhanced in two significant ways: support for the high performance processing element (HPPE) and the enhanced primary rate peripheral Interface (EPR PI), both T1 and E1.

A new Magellan Access Switch-specific HPPE card achieved general availability in February ‘96. The standard DPN-100 HPPE will operate in the Magellan Access Switch, but the Magellan Access Switch HPPE will not operate in DPN-100. HPPE on Magellan Access Switch initially supports the majority of interfaces and services, and continues to be enhanced in upcoming software releases to support additional services and interfaces.

The introduction of HPPE increases both the throughput and port speeds supported. Throughput is generally twice that of the PE386, depending on the interface and service mix. Up to 512 kbit/s on the four-port V.36 PI is now supported. Other high-speed interfaces benefit, as more high speed ports can be concurrently supported than before.

EPRPI, both T1 and E1, achieved general availability in February 96 on the Magellan Access Switch, supported by both the HPPE and PE386. These PIs introduce support for module connectivity at 1.544 or 2.048 Mbit/s. Further, as the EPR PIs do not utilize direct memory access (DMA), both DMA ports remain free for high-speed use with another PI concurrently in the same module. In addition, a particular application mode, called ‘drop and insert’ is introduced with the EPR PIs (and both PE types). This allows the Magellan Access Switch to terminate a T1 or E1 leased line, use a selected number of channels for netlink purposes, and pass off the remaining channels to a daisy-chained PBX. With this capability, two leased lines can be consolidated into one, saving facility costs.

These enhancements increase the Magellan Access Switch’s effectiveness in many environments, and allow network operators to easily upgrade remote module sites.

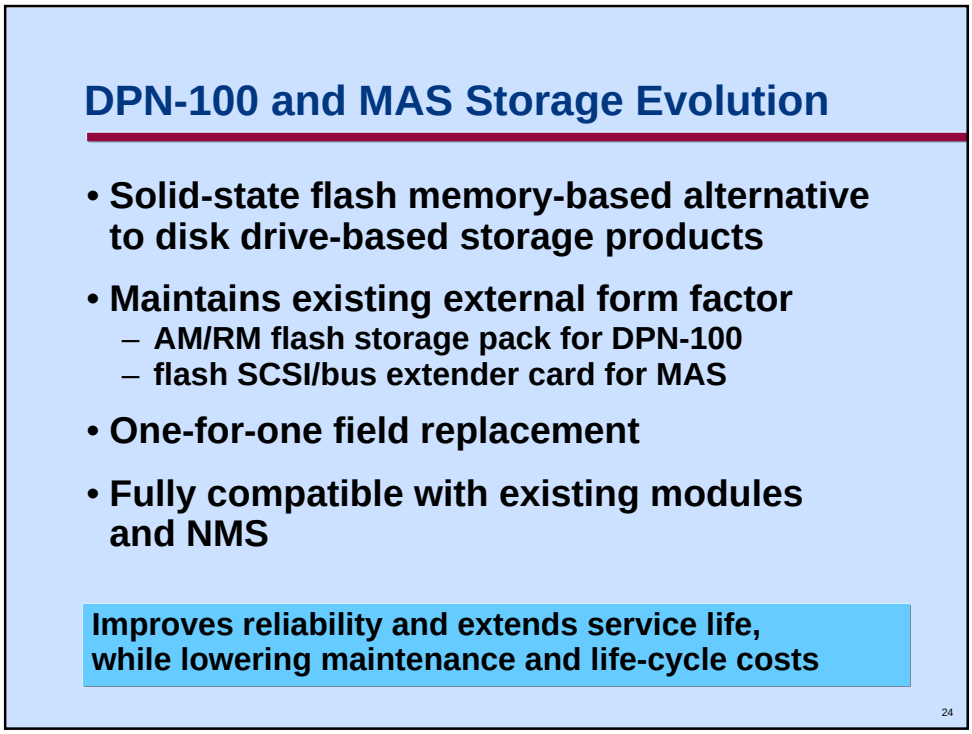


Nortel introduces the MI-8 integrated modem peripheral interface (MI-8 IMPI) for use in DPN-100 and Magellan Access Switch. This standard-sized PI card contains up to eight individually-insertable credit card-sized V.34 modem cards. Each card is provided with an individual telephone jack cable for direct PSTN connection. This PI is currently under trial with a lead customer in Europe.

MI-8 IMPI is now available for trial, supporting V.34 28.8 kbit/s ITI and point of sale (POS) dial services across eight modem interfaces. The PI and its modems are fully NMS manageable, including support for configuration downloadability from a central site to flash memory on each card. Software and configuration data is retained when the modem is removed or without power. The PI is uniquely identified in NMS Advisor, and the controlling PE generates appropriate alarms, statistics and accounting records for the modem ports.

The PI is ready to support, in addition to the features mentioned above, 19.2 kbit/s X.25 dial, DBNL and BWoD network links. The introduction of synchronous support is timed to follow that of async support upon finalizing qualification of the appropriate synchronous modem.

The MI-8 IMPI provides a fully integrated modem solution, allowing high-density packaging in a small footprint. The cost of modem connectivity is reduced, as modem racks, external cables and termination panels are eliminated. There is a related savings in power and floor space usage. Additionally, with a single-vendor solution providing integrated management, network operations overhead is simplified and corresponding costs reduced.



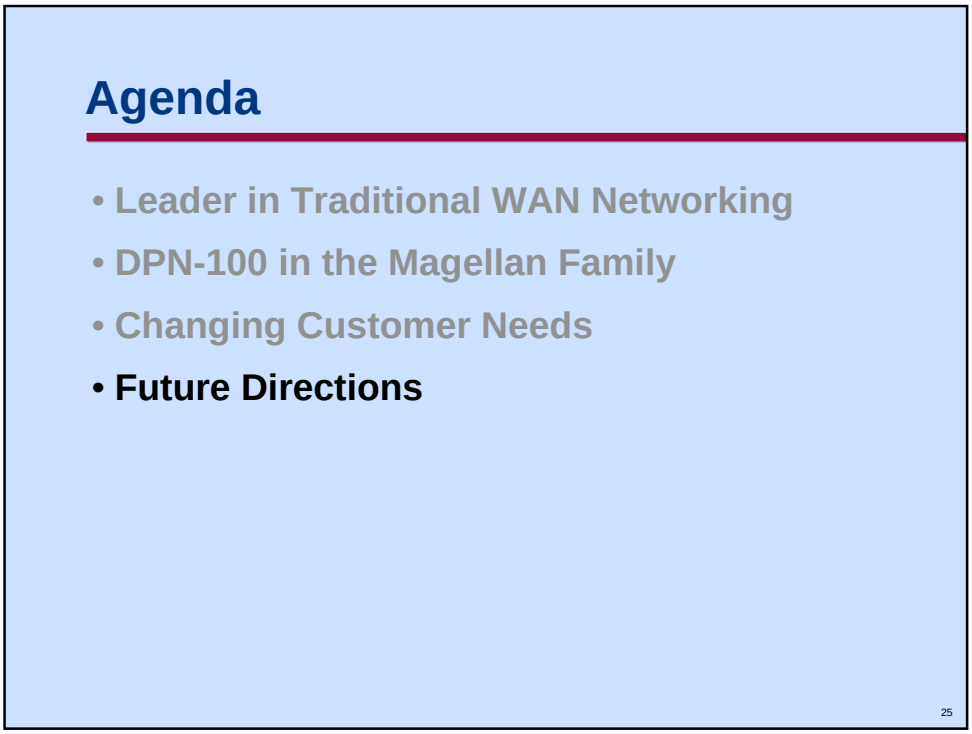
The time has come to take advantage of the benefits made possible by new solid-state non-volatile flash memory technology. Nortel introduces flash memory-based storage products as an alternative to disk drive based-storage on DPN-100 and the Magellan Access Switch. Customer experience with DPN-100/1 and MAP has already demonstrated the advantages of flash-based storage in the field.

By utilizing a solid-state technology, Magellan's storage platforms are improved in many ways. Service life is vastly extended, from the currently-recommended 5-year replacement life cycle to an expected 15 or more years per pack. Concurrently, module reliability is increased. This is particularly significant in single-disk modules, such as the Magellan Access Switch. Sparing costs are reduced as network operators spare fewer storage packs than is currently the case with disk packs. Maintenance and overhead costs are reduced as fewer unscheduled service calls will be required. All of this adds up to reduced overall cost of network ownership.

Nortel plans to introduce new AM/RM flash storage packs and Magellan Access Switch flash SCSI/Bus Extender packs in 1Q97. These can be optionally ordered in place of current AM/RM disk packs and SCSI/BE packs for either new orders or field upgrade purposes. Disk drive products will continue to be available for new orders and repair purposes after flash storage is introduced. Over the longer term, Nortel expects to replace disk drive products with flash storage completely.

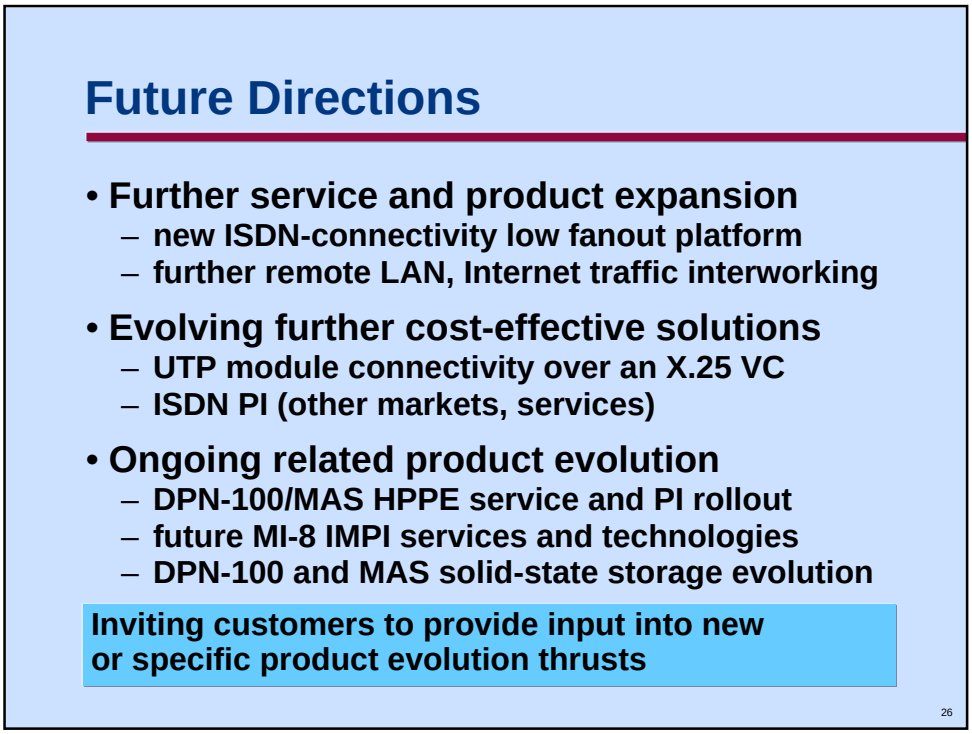
One of our primary goals in introducing these products is minimizing the impact on existing procedures. The introduction of these new packs has no impact on other existing module hardware. Existing network management procedures apply. Existing SCSI and disk commands will function as usual.

Further details will be communicated in a product bulletin in the near future.



DPN-100 and Magellan Access Switch future directions is introduced.

For the rollout status of upcoming features, please refer to the handout slides.



Nortel is committed to the DPN-100 and Magellan Access Switch portfolio, and is involved in a number of near and medium-term product and service evolution directions.

Nortel has launched a program to develop a new platform for very low fanout data networking environments utilizing an ISDN BRI (2B+D) interface for network connectivity. Nortel expects that initial platform prototypes will be available for trial by mid-1996. Full functionality prototypes including the ISDN interface are planned for 4Q96. This development program is expected to serve as a platform for ongoing evolutionary thrusts.

Nortel is developing a method of module interconnection utilizing UTP transport over standard virtual circuits. This capability, called VANLinks, increases flexibility of connectivity, as a module can connect over a third party X.25 network. Enhancements to the ISDN offering are under investigation. These include globalization of the ISDN PI beyond Europe, creating an ISDN PRI interface on Passport and/or DPN-100, and support for additional services on the existing PI.

DPN-100 and Magellan Access Switch service expansion continues. Enhancements to the PPP service and performance improvements to general async services are planned. Multiple smaller but no less important thrusts are in progress in other areas of the product line, as Nortel sees enhancement opportunities across the portfolio.

Finally, one Magellan strength not emphasized in this presentation is the suitability of the platform for specialized or custom applications. The Magellan development environment is well-suited to creating specific applications and features. These have been developed with success in the past, and Nortel plans to continue the tradition. Nortel invites Magellan network operators to work with the Magellan product management and development team to together design solutions to existing and upcoming needs.

Related Sessions

- **Magellan Access Solutions**
  Adrian Hatcher
- **Multimedia Branch Access Solutions**
  Richard Mayer
- **Engineering Network Access Solutions**
  Recep Halici and Ibrahim Gedeon
- **Passport/DPN-100 Networking**
  Elizabeth Hache
- **Magellan Network Management Overview**
  Dennis Cote

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For further information in the area of Magellan DPN-100, and Magellan access in general, please refer to the Inform 96 workshop sessions noted above. Additionally, on the topic of managing Magellan networks, and how Magellan is evolving in this area, refer to the network management workshops.

Also, feel free to speak with Nortel and BNR experts on any of these topics during the Magellan Access demonstrations and whiteboard clinics.