



Optimizing DS-3 bandwidth for media applications



Where video is moving

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Nevion confidential



Outline



- The Video Network
- Basic DS3
- Ventura Products
- Company overview



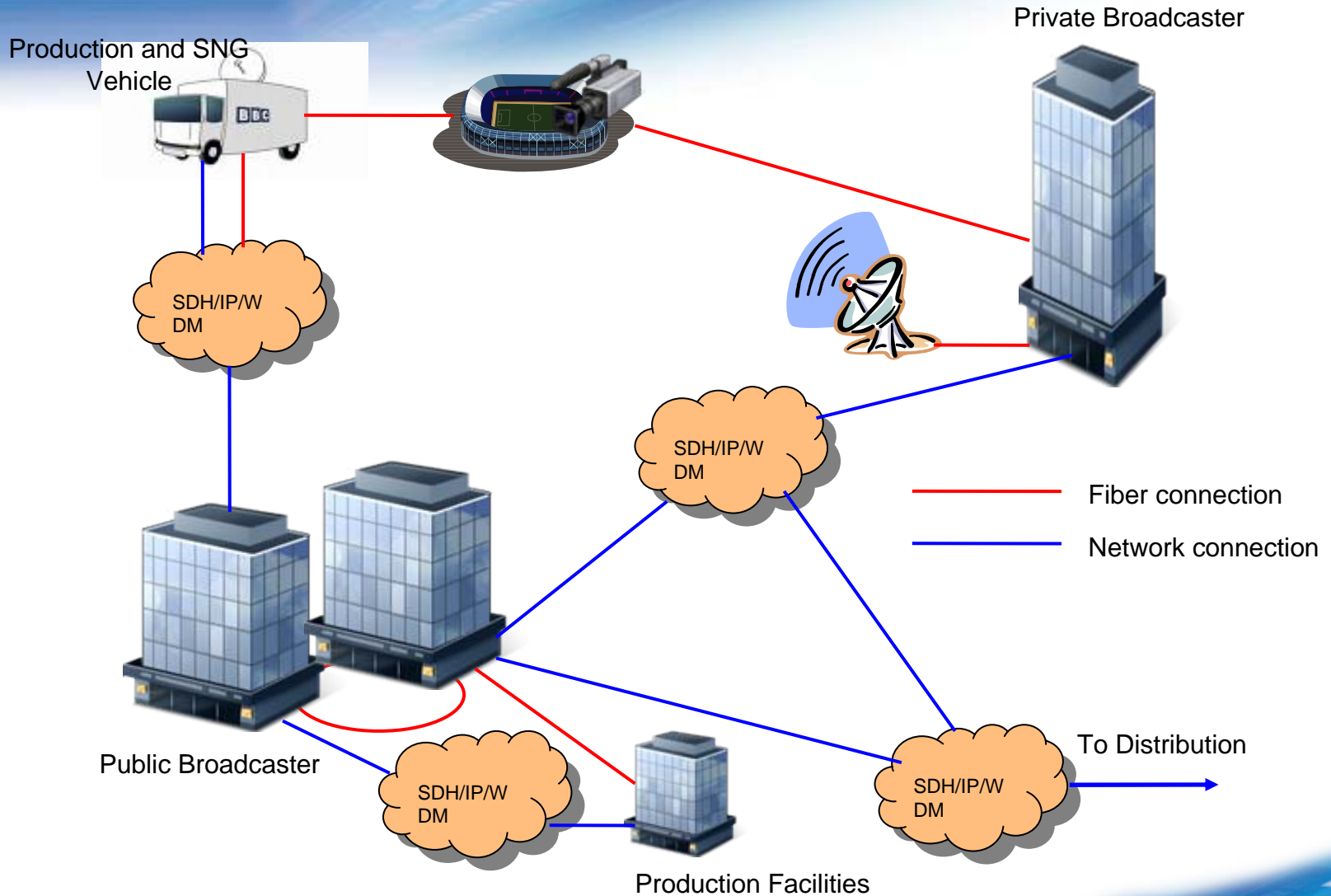
Video Network Planning

- Maximize existing network profitability
 - Equipment
 - Space
 - Power
 - Operations
- Provide absolute carrier-class delivery
- Avoid risk while enhancing flexibility
 - Ramp up HD while supporting legacy
 - Meet changing customer requirements
 - Leverage new technology quickly
- Prepare for the unexpected





Various Video Content Contribution Needs



Where video is moving



Various Video Transport Solutions



Monitoring and Control

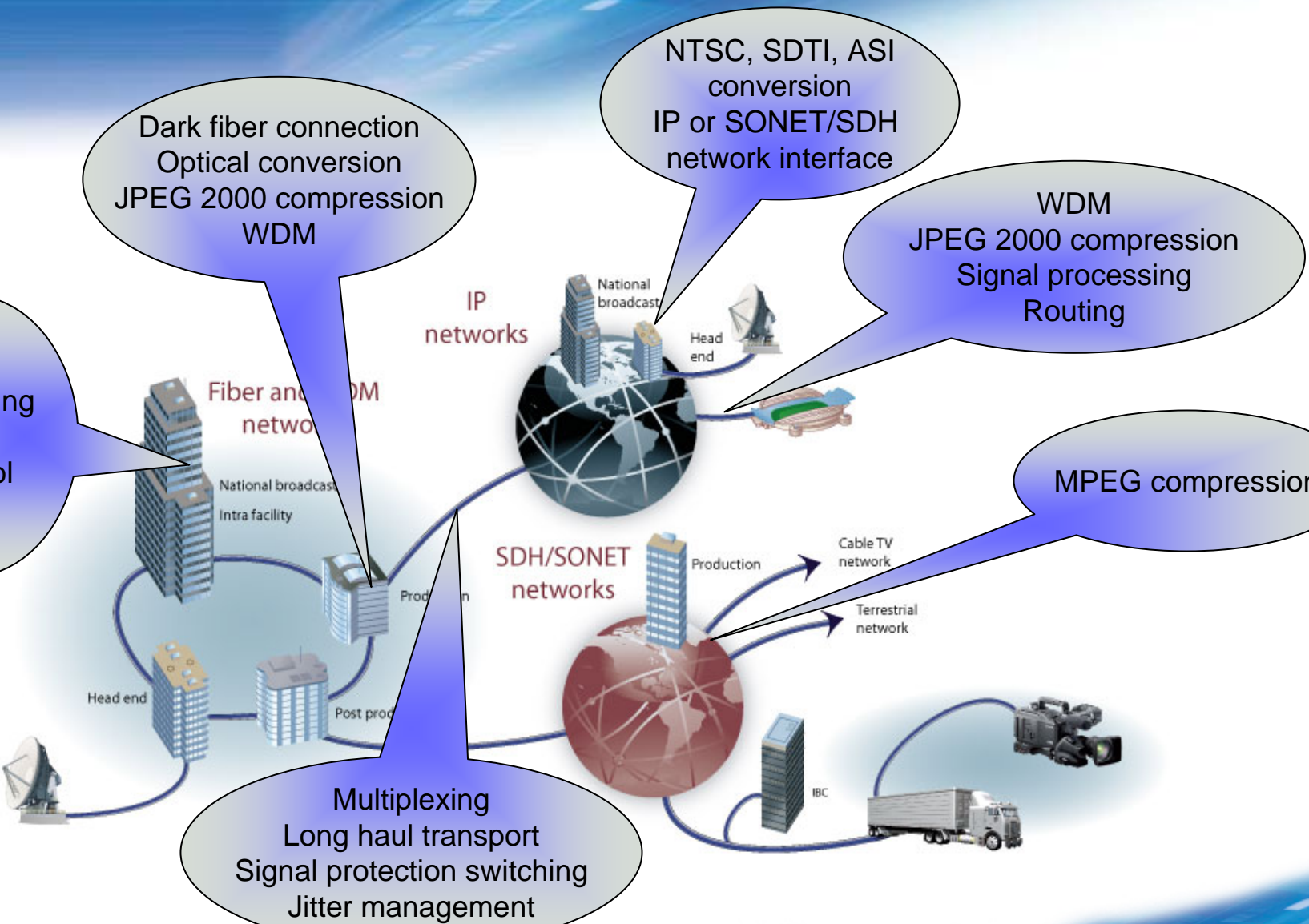
Dark fiber connection
Optical conversion
JPEG 2000 compression
WDM

NTSC, SDTI, ASI conversion
IP or SONET/SDH network interface

WDM
JPEG 2000 compression
Signal processing
Routing

MPEG compression

Multiplexing
Long haul transport
Signal protection switching
Jitter management





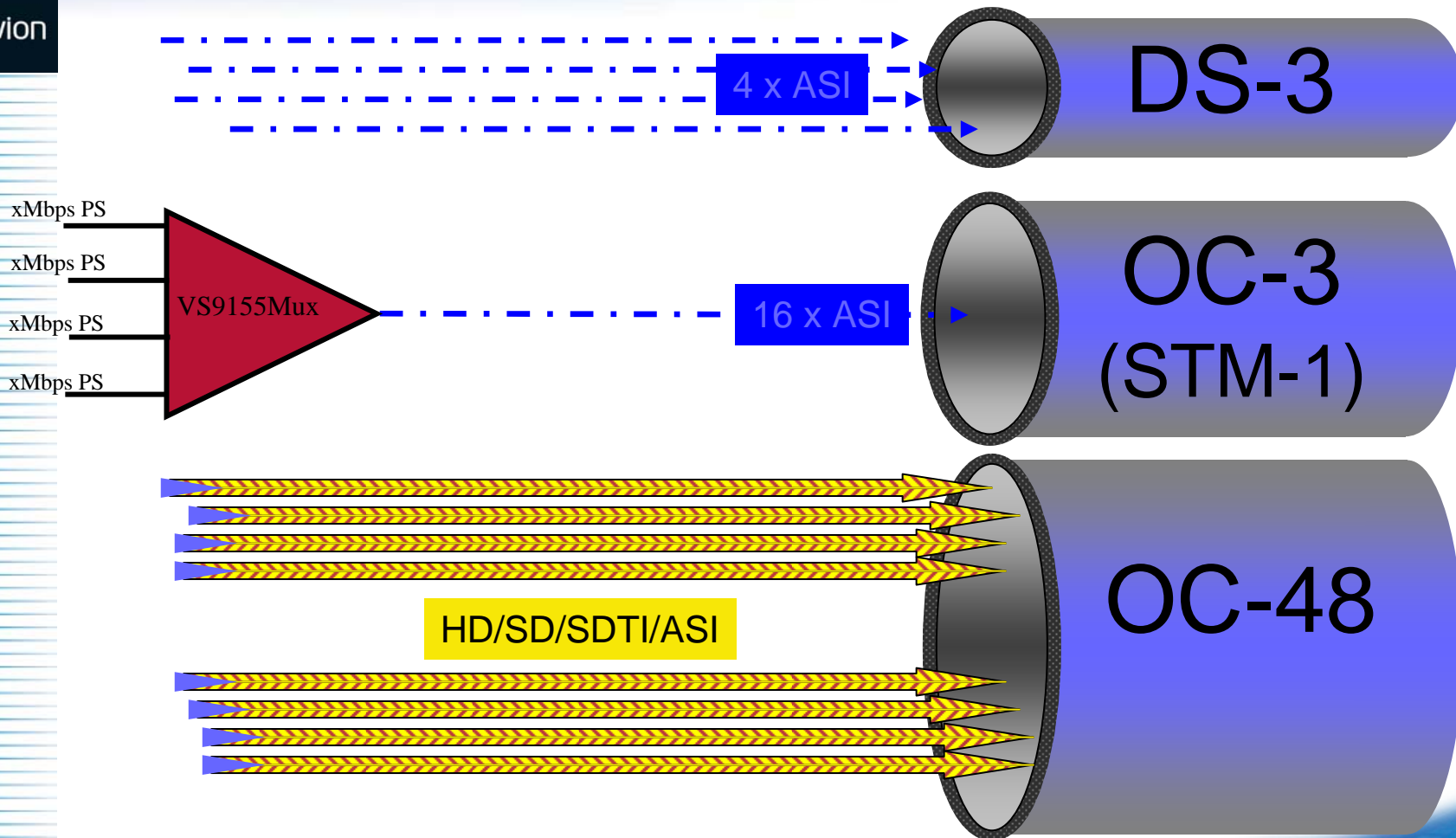
Video Compression



- Types of compression available:
- MPEG-2
- MPEG-4
- JPEG 2000
- Transport Stream
- ATSC 19.4Mbps (SMPTE 310M)
- ASI 270 Mbps



DS3 Video 4 ASI and beyond





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DS3 Limitations and Advantages



- DS3 service provides a cost-effective solution
- A DS3 network can be comprised of either a series of DS3 point-to-point circuits or a DS3 virtual private network.
- In most DS3 implementations, only about 38 – 39Mbps of the protocol's 45Mbps line rate is available as usable bandwidth. From 6 – 7Mbps are dedicated to overhead data.



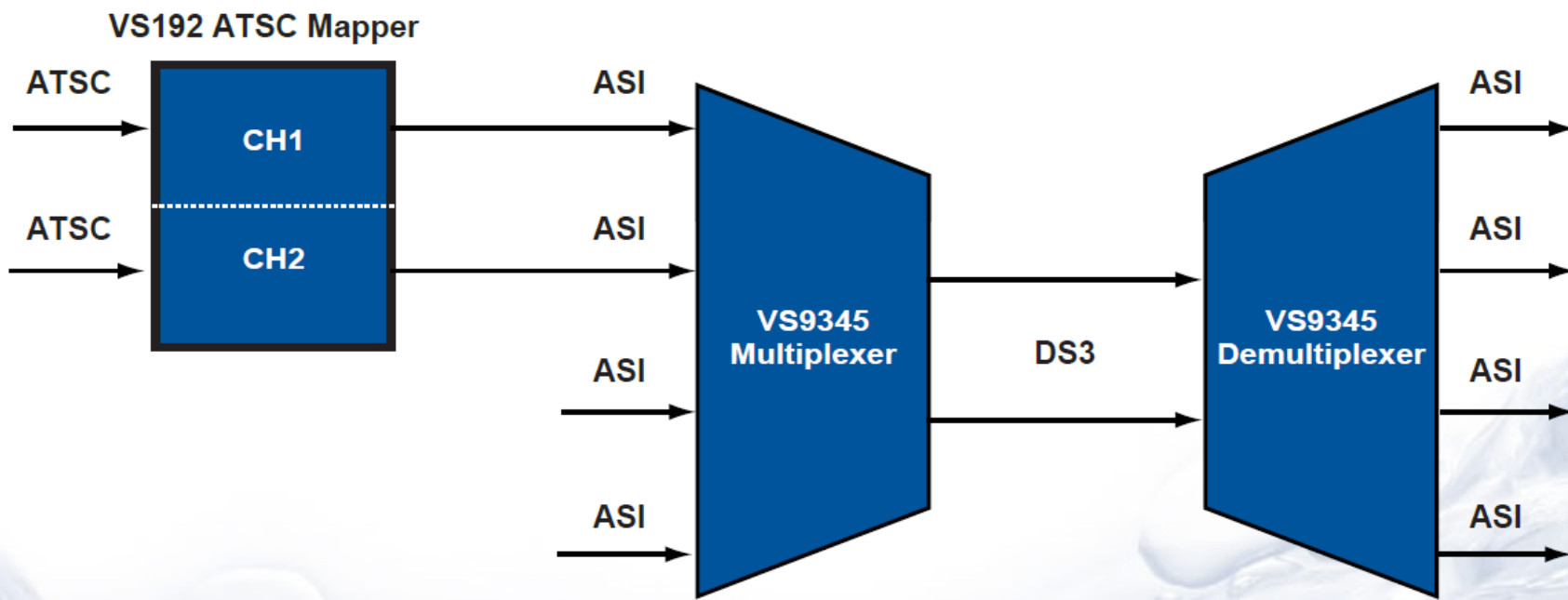
The Solution



- Using a SMPTE-310 to DVB-ASI converter card can convert two 19.39Mbps high-definition ATSC channels into two DVB-ASI transport streams (TSs) at 270Mbps.
- Multiplexing technology that reduces DS3 overhead requirements by over 65%, increasing usable DS3 bandwidth to 43Mbps. This makes it possible to squeeze two HD channels into a single DS3 line.



Transport 2 high-definition ATSC streams 1 DS3 interface

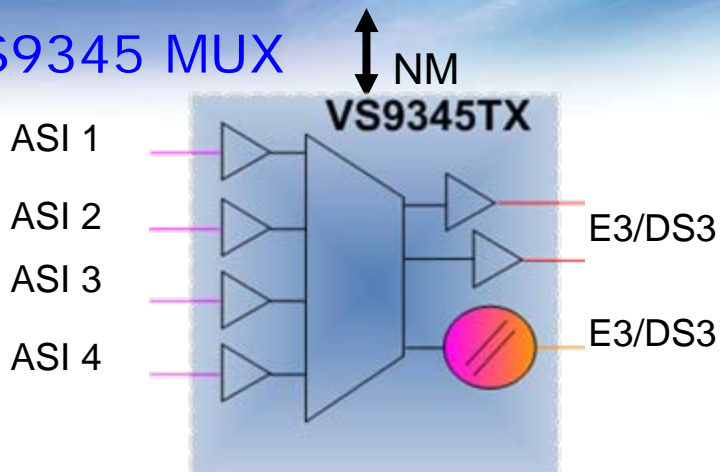




VS9345 ASI Multiplexer/Demultiplexer

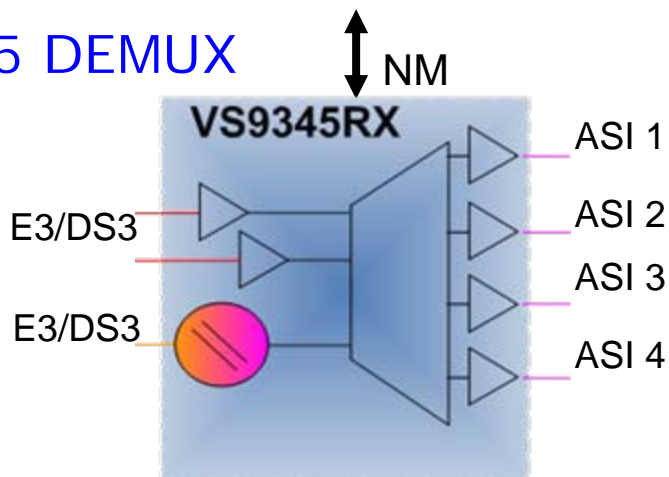


VS9345 MUX



- DVB-ASI compliant inputs
- Configurable payload/FEC
- Configurable bit rate ceilings
- Submux functionality
- **E3/DS3** compliant outputs
- ASI stream analysis
- Dual Electrical outputs (**no optical output**)
- AEMS compatible

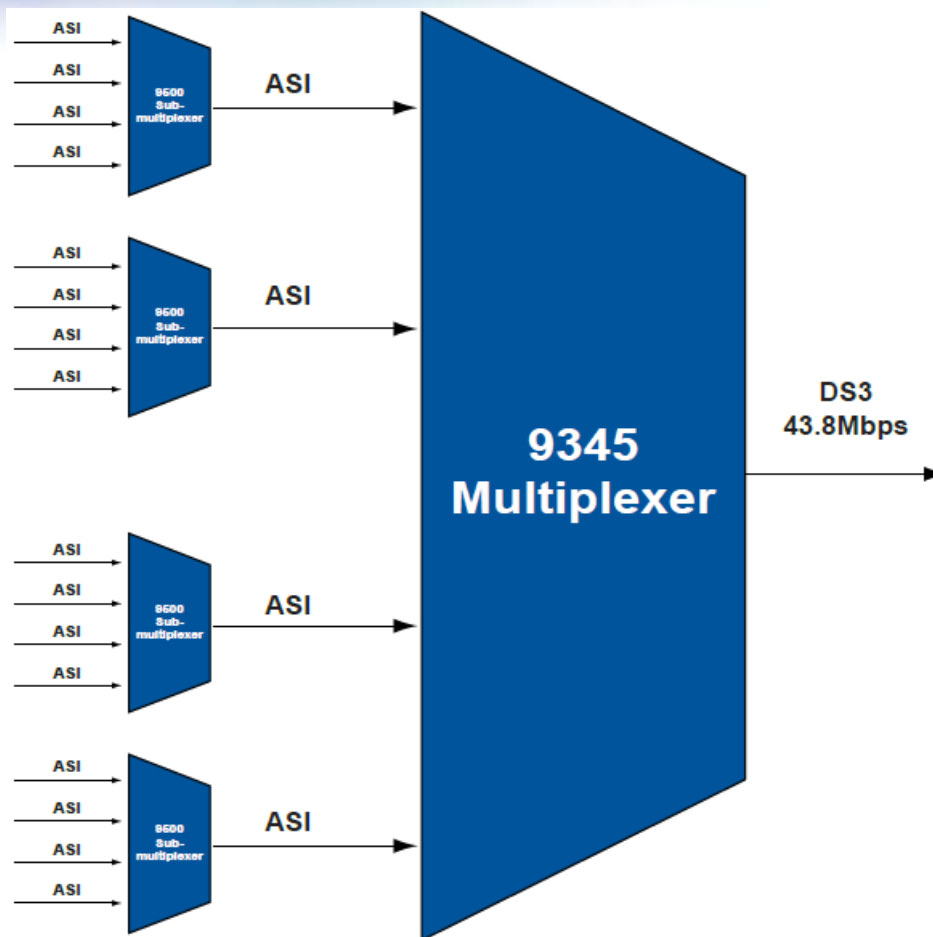
VS9345 DEMUX



- ▼ DVB-ASI compliant outputs
- ▼ **E3/DS3** compliant inputs
- ▼ ASI stream analysis
- ▼ Electrical input with loop thru (**no optical input**)
- ▼ AEMS compatible

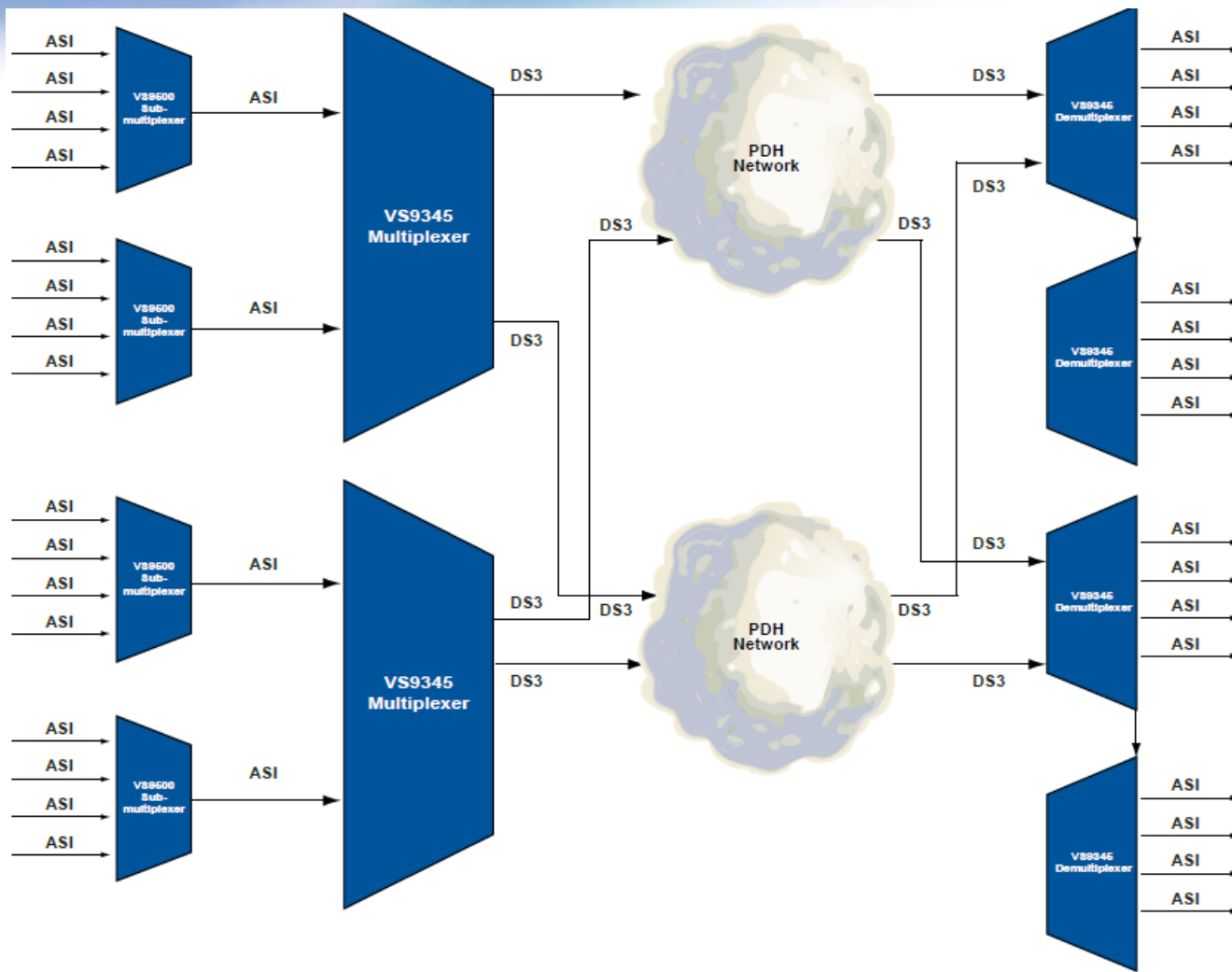


Transport 16 ASI channels through single DS3 interface





DS3 Redundancy and auto switching





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VS-9345 DVB-ASI TS multiplexer and bandwidth optimizer for DS3/E3



VENTURA

VS9345-AM / VS9345-AD



DVB-ASI TS multiplexer and bandwidth optimizer for DS3/E3

KEY FEATURES

- Multiplexes four DVB-ASI inputs into one DS3 (45Mbps) or E3 (34Mbps) output
- Input ports can be fed with a VS9500 sub-multiplexer, supporting up to a total of 16 transport streams
- ASI inputs can be switched to any demux output
- Maximizes ASI payload capacity (up to 43.4Mbps (DS3) or 33.6Mbps (E3) over a 45Mbps network); supports 2 x 19.4Mbps TS signals over DS3 link
- Individual port bandwidth ceiling provides total control over capacity available to client (to a resolution of 0.1Mbps per TS)



Ventura: A Carrier-class system



- NEBS Level 3 compliant
- Field replaceable components
 - Redundant power supplies
 - Hot-swappable service modules
 - Optical components
- 19" or 23" rack-mountable
- Configure multi-channel modules for optical redundancy
- Comprehensive network management



VS103 Ventura Chassis – Part Numbers



- VS103-AC-IFA
- Dual redundant AC Power Supplies (i.e. 2) VS113 : 90 to 264vac, 200W
- FCS183-AEMS Card in slot 1
- VS111 1RU Heat Baffle
- VS113-DC-IFA
- Dual redundant DC Power Supplies (i.e. 2) VS123 : 35 to 72vdc, 200W



Additional Ventura Cards

- VS9345 ASI-MUX with DS3/E3 network interface
- VS9155 ASI-MUX with OC-3c network interface
- VS9500 ASI-MUX with SDTI/ASI network interface
- VS901-SX-12 HD/SD to OC-12c network mapper
- VS811-SH 8 channel SDI MUX into OC-48c with HD
- VS901-TE J2K compression engine for HD over 270
- VS861 HD/SD MUX with OC-192c interface
- VS908 8 channel ASI MUX into Gig-E with HD/SD
- VS901-IX-GE J2K compression engine for HD over Gig-E
- FCS-250/1000 (4 and 16 channel TIMS)



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Neveion Facts



- **150 employees in Norway, US, Singapore, UK and Dubai**
- **World wide distribution network**
- **Group sales approx. 60 million USD**
- **Profitable and financially strong, AAA rating from D&B**
- **ISO 9001 Certified**
- **Over 20 years of consistent growth in video transport business**
- **Owned 70% by Herkules Capital, and industrial PE company**



The Ventura Platform DS3 Video Support

 nevion



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