

The most flexible end-to-end broadband deployment solution

NEC AM3100 Series



The most flexible end-to-end solution available for your broadband deployment.

Today the design and implementation of Next Generation Network (NGN) technology is one of the most pressing issues facing telecommunications businesses.

As we enter the third wave of broadband development, flexibility is key. Coupled with convergence, your business will undergo massive changes.

In order to survive, you will need to reinvent your business and revenue structure in order to deliver enhanced user experiences.

The need to introduce intelligent and bandwidth-hungry services quickly and without risk, demands a new level of scalability and flexibility.

The AM3100 Series represents a generational shift in access technology. Drawing on 18 years of experience in the most demanding markets and environments, NEC has built a total access platform family that meets all your copper, fibre and application needs.

The AM3100 Series leads the industry in responding to the challenges of providing fixed, voice, video and data services, delivering fast and flexible, future-proof and cutting-edge broadband solutions. NEC delivers you one platform for all your broadband requirements with a common management system.

The AM3100 Series delivers you unrivalled flexibility of deployment. As you move forward with the evolution of your network, the AM3100 family of products supports all your optical and copper requirements. NEC's long standing reputation for upgradeability means that investing today in the AM3100 Series readies you for the Next Generation Network.

NEC has been at the forefront of some of the world's largest deployments of fully layered NGN solutions and is uniquely positioned to assist you to make the most of your current and NGN investments. Our end-to-end solutions give seamless integration for your broadband network and your customers.

Flexible, scalable solution

The AM3100 Series is one of the world's most flexible, scalable and fastest broadband platforms enabling end-to-end service delivery under a common management platform.

It is built for deep fibre penetration and supports ultra high density and high bandwidth. It is available in a number of sizes to cater for every possible purpose from multimedia to traditional telephony.

Flexibility is the key strength of the AM3100 Series, offering scalable solutions suitable for the demands of ever increasing bandwidth and new services.

As density and bandwidth increase the reliability of systems becomes critical. AdvancedTCA (Advanced Telecommunication and Computing Architecture) platforms are being deployed throughout next-generation networks, in service delivery platforms, intelligent access control nodes, and in the data transport plane, i.e. SBCs, Softswitches, and MSANs.

Compliance to AdvancedTCA gives operators the readily recognizable assurance that the system is carrier-grade, NEC's AM3100 series MSANs use PICMG AdvancedTCA standard.

The compact form factors enable new deployment scenarios and niche services catering for tens to thousands of subscribers.

The AM3100 Series delivers 1.2Tbps backplane capacity, 40Gbps capacity per slot and sophisticated service flexibility supporting multiple services.

The industry leading capacity and flexibility of the AM3100 Series gives you the support you require for the most feature rich multimedia services.



NEC: global knowledge and local understanding

NEC is a global leader in 3G, optical, wireline, WiMAX and broadband over powerlines. We utilise this global knowledge to help you optimise your investments. Our professional services teams can assist you in all aspects of designing and deploying your network and platform needs.

At NEC we understand the risks and demands facing access providers, as we operate a wholesale access provider - Nextep. This gives us an unrivalled know-how and gives you the assurance that we will deliver the products and features you need.

With NEC, one size does not fit all – NEC's latest access technology products give customers the greatest levels of flexibility and scalability and the NEC AM3100 Series offers solutions for all sizes of implementation from the high-end to niche services.

NEC knows what it takes to build a high-speed broadband network and broadband service delivery platforms. NEC builds robust products that are born out of experience in difficult markets. Whether it is extremes in temperature, dust, heat, distance or density, NEC understands the pressures on your organisation and has built a robust delivery platform to enable your business.

Proven heritage

When you install the AM3100 Series you're investing in proven technology. The Series has a distinguished heritage, evolving from our industry-leading AM31.

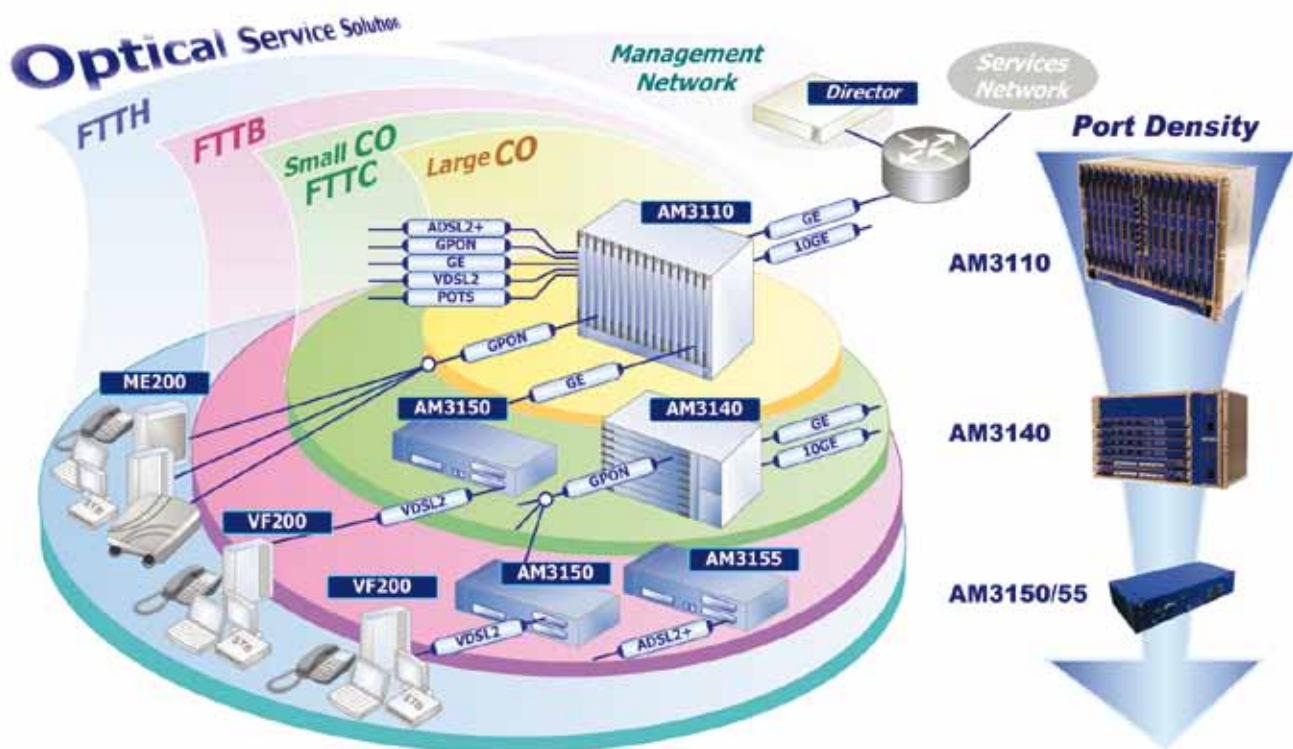
The AM3100 Series has advanced from this to become the preferred access platform for the High-Definition and On-Demand era.

NEC's success in broadband since the early 1990s is based on our flexible approach. We work in partnership with our clients, sharing the entire experience with you from end-to-end. If you'd like to discover more, one of NEC's specialists would be delighted to help you. For contact details please see the back page of this brochure.

“OptiComm selected NEC as our partner for the Fibre-to-the-Premises (FTTH/P) network based on the outstanding performance of their technology and their vast experience in optical systems.”

Paul Cross, CEO, OptiComm

Introducing the AM3100 Series



Features and solutions to meet your needs

Features

- Network interfaces - GE, 10GE and GPON
- Line interfaces: GE, GPON, ADSL2+ and VDSL2
- Flexibility – scalable form factors to suit all scenarios
- Small footprint – enabler for new deployment scenarios and niche services
- Field-proven IPTV capabilities
- High-capacity system architecture, 1.2Tbps bi-directional backplane capacity – enabled for bandwidth intensive services with up to 40Gbps per slot
- Carrier-class redundancy – includes numerous protection features
- Advanced QoS (Quality of Service) features – full classification, marking, policing and shaping capabilities
- Comprehensive OAM capabilities – remote fault management and connectivity verification for OPEX savings
- High-density design
- Network processor-based design principles to accommodate future protocols and standards via software upgrades
- Redundant uplinks with fast GE switching
- Director NMS: a common management platform with comprehensive options from element management through to business and customer management.

Director: Network management system

Director is a comprehensive multi-service network management system solution to complement the AM3100 Series platform. All devices in the AM3100 Series are managed by the same Director system.

Based on a common management platform with optional OSS/BSS components include inventory, trouble ticketing, CRM and billing, with a strong focus on service activation, and cross-domain management.

Director provides a long-term investment strategy, with a scalable management solution that can cater for small to large deployments.

The advanced automation of Director is easily accessible via a unified web portal that is deployable in a telecoms-grade configuration.

AM3110

The AM3110 provides an ultra-high-density, highly-flexible, extreme throughput device for aggregation of remote devices, GPON OLT and high-density DSL. With 1120 ADSL ports or 112 GPON ports, the AM3110 represents the highest densities available in today's market.

Features:

- Leading-edge optical and DSL technology and competence; driven by the most competitive and advanced broadband environments
- Backplane capacity of 40Gbps bi-directional to each slot
- Scalable and cost-efficient Multi Service Access Node (MSAN) - Interfaces including VDSL2, GPON and GE
- Incorporates NEC's latest GPON device technology
- Fully standards compliant

Industry standard PICMG ATCA architecture ensures faster more cost-effective development which directly benefits operators and their customers.

AM3140

The AM3140 is purpose designed for deep fibre penetration. Having all line cards and uplink cards common with AM3110, AM3140 is half the size of AM3110, specially designed for the use in small central office and street cabinets. Maintaining the same performance as AM3110, AM3140 provides the freedom to install in smaller environment.

Features:

- Compact footprint
- Purpose-built for deployment in a hostile environment
- 65°C thermal specification
- Common line cards and uplink cards as the AM3110
- MSAN or GPON OLT
- ATCA based architecture ensures faster more cost-effective development which directly benefits operators and their customers
- Incorporates NEC's latest GPON device technology

AM3150

The NEC AM3150 is a compact access platform that enables operators to extend the reach of high bandwidth triple play broadband services through DSL deployment at outside plant locations.

Features:

- High speed VDSL2. 100/100Mbps operation with ITU-T G.993.2 profile 30a support.
- High subscriber densities. Support for 48 DSL subscribers in a 2U chassis, 24 DSL subscribers in a 1.5U chassis.
- Automatic ADSL/ADSL2+ fallback. Increases deployment flexibility with connectivity to the current base of deployed ADSL CPE. Compliance with ITU-T G.992.1 ADSL and G.992.5 ADSL2+.
- GPON/GE uplinks. Selectable G.984 GPON or GE pluggable interface modules.
- Optimized for remote plant deployment. Environmentally hardened with an operating temperature range of -25°C - +65°C.

AM3180

The high density AM3180 is the optimal solution for space-limited remote building and street cabinet deployments. The AM3180 can be used with NEC AM3110/AM3140 equipment to support small scale broadband deployments.

Features:

- 48 x 100Mbit/s VDSL2 interfaces. Compliant with ITU G.993.2 and G.994.1 standards. Support for VDSL2 profiles up to 17a. Optimised for bandwidth, density, power and cost for cabinets and building deployments
- Automatic ADSL/ADSL2+ fallback. Increases deployment flexibility with multi-vendor connectivity to the current base of deployed ADSL CPE. Compliance with ITU-T G.992.1 ADSL and G.992.5 ADSL2+
- Two Gigabit Ethernet uplink/cascade ports. Enables support of simultaneous 40Mbit/s downstream throughput on all 48 VDSL2 ports
- Subscriber differentiation. Being able to tailor QoS, Security and IPTV controls for each subscriber (logical VLAN) expands the range of unique services that can be offered.

AM3110 - Next generation high capacity broadband access platform

AM3110 next-generation MSAN continues NEC's record in leading-edge Access Network platforms. With a system bandwidth capacity of 40Gbps bi-directional per slot the AM3110 supports a non-blocking architecture for the most bandwidth intensive FTTH technologies. AM3110 is optimised for high-density Central office and Cabinet deployments.

Key Features

- **High density.** Industry leading density. Over 1000 DSL subscribers, up to 7168 GPON ONTs and over 100 Gigabit Ethernet interfaces.
- **High capacity system.** Up to 1.2Tbps backplane support for 1Gbps, 2Gbps, 10Gbps and 40Gbps bi-directional protected and dedicated bandwidth per slot for high bandwidth FTTH deployments.
- **Multi Service Access Platform.** Supports DSL, POTS, PON, POTS, and Ethernet interfaces. A flexible platform for all deployment scenarios
- **Advanced QoS features.** Service-aware delivery to Subscribers.
- **Carrier-class reliability.** Dual power feed, Protected backplane connection and Aggregation modules.
- **Comprehensive OAM capabilities.** Remote fault management and connectivity verification for OPEX savings.
- **Standards based open platform.** Based on PICMG AdvancedTCA standards. Accelerating the Time to Market of new access technologies

Specifications

Applications

- A HDTV and service on-demand Next-generation Broadband Network
- Building a FTTH GPON or Point-to-point optical Access network
- High density DSL Access Networks in Central Office and Cabinet deployments
- Migration of legacy services, like POTS and E1/T1, to NGN

Configuration

- 2 x Aggregation and Management slots (control, switching and trunk interface)
- 14 x Line Termination slots

Aggregation & Management Interface Modules

- 8-port Gigabit Ethernet (IGU-8E1000)
- 2-port 10 Gigabit Ethernet with 6-port Gigabit Ethernet (IGU-2E10G)

Line Termination Units

- ADSL2+, VDSL2
- GPON
- GEPON
- GE, FE

Management & OAM

- Local RJ-45 10/100/1000Base-T and Serial out-of-band management interfaces
- Local/remote SNMP management
- Remote CLI telnet and Local CLI through Aggregation and Management Module out-of-band interface
- 802.1ag/Y.1731 Ethernet OAM

Physical Specification

- 16 slot: 495mm(w) x 400mm(h) x 264mm(d)

Electrical Specification

- Dual -48VDC power feed



ME200 Range: ONUs to enable a broadband community

The AM3100 Series is completed by the NEC ME200 SFU/SBU Series GPON ONTs. These ITU G.984 compliant products enable the reliable and cost efficient delivery of a mix of GE, 100Mbps, E1, POTS and RF TV interfaces over PON networks for residential and commercial deployment.

The ME200 Series ONTs, down to and including each offered service interface parameter, are fully configured and managed using the same NEC Director network management system as all other elements of the AM3100 Series.

Key Features

- ITU-T G.984 GPON interface with Class B+ and Class C+ optics
- Wide selection of service interfaces including GE, FE, POTS, E1/T1 TDM, WiFi IEEE 802.11 a/b/g/n and RF overlay video
- Flexible traffic CoS policy, based on 801.1p, IP ToS and IP DiffServ etc.
- Flexible service models for most application scenarios

Applications

- Deploy with NEC AM3100 Series products for cost-effective residential and business FTTH deployments
- Deploy with NEC AM3150 VDSL2 ONU for cost-effective MDU deployments
- Deploy multi-channel HDTV IPTV, high speed Internet access, voice and symmetric business data services support
- Implement cost efficient leased-line services, e.g. mobile base station traffic backhaul.



Case Study: IPTV Solution, PCCW Hong Kong

PCCW, Hong Kong's leading telecoms provider, owns a long-established fixed-line phone network serving 2.2 million households in the city, one of the most densely populated territories on the planet. With a management initiative to put to use the full bandwidth capacity of the company's fibre optic cable network, PCCW set out to expand its business by offering additional services to its customers down the fixed line network.

The result was NOW TV. Today, NOW TV remains the world's largest IPTV deployment, offering multiple TV channels, and PCCW also provides high-speed internet and fixed-line telephone services all on the same broadband connection. NOW TV currently offers over 150 channels with more being added all the time.

NEC hardware is at the heart of the system. We provided the access solution that also features secure DRM (Digital Rights Management), channel entitlement validation and switching, video quality monitoring, multiple channels per DSL line, content management, subscriber management and billing interface from the NMS (Network Monitoring System).

The NEC solution provides PCCW with continual viewer statistics collection and reporting of all users. This gives the operator, and the content provider, unique insight into the type of programming that is most popular and at what times on NOW TV. This is also a crucial tool in targeting advertisers. It's truly a win – win.

The flexibility and scalability of NEC's solution is illustrated by its ability to assist NOW TV to commence operation with Standard Definition broadcast, then add more interactivity and Video on Demand, and most recently to support High Definition content. Meanwhile the video services take-up rate has increased to an amazing 75% of PCCW's broadband users, representing over 38% of Hong Kong households.

Just another example of how NEC's customer focus delivers results for operators.

NEC: A global leader in broadband technology

NEC is a global leader in FTTx, GPON, xDSL, 3G, WiMAX and PLC. We excel in the technological aspects of high-speed, broadband platforms and we thoroughly understand the business, competitive and bottom-line pressures that our customers face.

Our knowledge of the risks and demands facing access providers is based on our own experience as a wholesale access provider. This experience gives us unrivalled insight into customer needs. We utilise this global knowledge to develop products and features that suit your real-world requirements, to help you optimise your investments and to provide professional services that assist you in all aspects of designing and deploying your network and accelerate your growth with an end-to-end solution customised for your market needs and business objectives.

For more information, visit www.nec.com.au, email contactus@nec.com.au or call 131 632

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