

**connecting lives**  
connecting worlds

## Broadband Solutions

ADB's solution suite  
for the connected  
home and small office



Solution Overview  
and Key Features



# Broadband Solutions

## Solution Overview and Key Features

Broadband Solutions offers a suite of products that enables service providers to deliver reliable, predictable and ultra-fast internet access into homes and small businesses.

Broadband Solutions includes high quality gateway hardware, a comprehensive gateway software stack, together with a portfolio of device management tools that allow service providers to deliver a comprehensive range of broadband services for all types of subscriber.

ADB has a solid and dynamic roadmap addressing the evolution of networking and service support functionality – from high performance hardware and flexible software to responsive monitoring solutions that assist operators in proactively and rapidly addressing subscriber service issues.

### **Epicentro® Gateways**

ADB's Broadband Solutions include a residential and small and medium business (SMB) gateway product range that completely addresses current market needs for broadband access, from entry level to future proof high-end devices.

Residential and SMB gateways combine in a single device offering the **various functions of modems, routers, and wireless access points**, providing user devices within the home and small office networks with seamless and secure **broadband connectivity to the internet**, other branch offices or corporate network infrastructure.

Despite their differences, residential and SMB application scenarios share enough common requirements to often make a single gateway model suitable for both categories, with specific features addressed mainly by proper combinations of software components and hardware population options such as physical ports, LEDs and additional buttons.










ADB gateways are designed to cover a wide variety of residential and SMB application environments, satisfying the expectations of operators for quality and cost effectiveness. For both market segments, the ADB portfolio includes powerful high-end xDSL and FTTx Integrated Access Devices (IAD) for multi-play services, as well as xDSL routers supporting Internet access with an industry leading combination of cost versus performance.

ADB offers modular upgrade packs for the ADB Epicentro® Software stack, including support for advanced multi-line, multi-interface VoIP services, VPN and site-to-site interconnection. The extensive CLI enhances the features provided by the same hardware platforms to fulfil requirements of SMB customers at the best price point.

Dedicated entry-level residential and top-level SMB gateways complement the offering to meet cost and performance targets for both the lowest and highest range of the application spectrum.

A solid roadmap for both hardware and software ensures a continuous evolutionary path, laying the basis for operators to apply the right innovations at the appropriate time – to satisfy stringent time-to-market requests in a rapidly changing technology and business landscape.

## Summary list of Epicentro® Gateways

Entry-level Router	Entry-level IAD	Mid-end IAD / Router	High-end IAD / Router
<b>Residential Gateways</b>			
<b>DA 2210</b> • Epicentro stack – Basic Residential Router Profile  ADSL, 4xFE, N-300, 1xUSB	<b>VV 3220</b> • Epicentro stack – Basic IAD Profile  xDSL, 1xGbE, 4xFE, N-300, 2xFXS, 2xUSB	<b>DV 5820 (→5822*)</b> <b>VV 5820 (→5822*)</b> • Epicentro stack – Mid-range Residential IAD / Router Profile  xDSL, 5xGbE, N-300, AC-1300, 2xUSB [VV 5820: + 2xFXS]	<b>→ VP 5920**</b> <b>→ VT 5920**</b> • Epicentro stack – Full Residential IAD Profile  xDSL-35b, 5xGbE, N-300, AC-1700, 2xFXS, 2xUSB [VT 5920: + SFP, G.fast]
<b>DV 2220</b> • Epicentro stack – Basic Residential Router Profile  xDSL, 4xFE, N-300, 2xUSB			<b>→ DP 5920**</b> Epicentro stack – Full Residential Router Profile  xDSL-35b, 5xGbE, N-300, AC-1700, 2xUSB
<b>SMB Gateways</b>			
<b>DV 2220 + SMB extension pack</b> • Advanced CLI • SIP Proxy • B2BUA • SIP Trunk	<b>VV 3220 + SMB extension pack</b> • Advanced CLI • SIP Proxy • B2BUA • SIP Trunk	<b>DV 5820 / VV 5820 + SMB extension pack</b> • VPN Termination • Advanced CLI • SIP Proxy • B2BUA • SIP Trunk	<b>DT 5820</b> <b>ST 6840/6850</b> • Epicentro stack – Full feature set • VPN Termination • Advanced CLI • SIP Proxy, B2BUA, ISDN, SIP Trunk [ST 68x0 only]  xDSL-35b, G.fast, SFP, 5xGbE [ST 6840: 4xGbE], N-300, AC-1300, 2xUSB [ST 68x0: +2xFXS, ISDN-BRI, DECT]
* <b>DV 5822 / VV 5822</b> : technology and housing evolution, phase-in Q4-2016 ** <b>VP 5920 / VT 5920</b> : phase-in Q1-2017			



## Epicentro® Software

All ADB's gateways include the Epicentro® software stack, full-featured and scalable embedded middleware supporting IPv4/IPv6 routing, QoS, VoIP, security and Broadband Forum TR-069 remote management for the deployment of extended services such as Home Automation, Security, Health Care, Energy Management and many other areas.

Epicentro® offers a rich feature set that fulfills all requirements defined by key standardization bodies active in the broadband CPE technology segment such as the Home Gateway Initiative, the Broadband Forum, the WiFi alliance, DLNA and UPnP Forum.

Support for SDN architectures is provided through the integration of an OpenFlow-controlled Open vSwitch virtual switch, with provision for hardware or software based packet flow acceleration.

Thanks to its open, fully extensible and modular architecture, the stack can be assembled in profiles tailored to the specific characteristics of the devices where it is hosted and bespoke deployment requirements, at the same time allowing for efficient upgrades in the field.

An OSGi execution environment and the ongoing integration of a virtualization layer based on software container technologies enable efficient collaboration with third parties. With the aid of a number of Software Development Kits, operators can benefit from flexible feature customization and expansion through the dynamic addition of software components in a reliable and secure way.

In summary, Epicentro® provides the following value propositions:

- Mature, field proven solution,
- Pre-integrated with industry leading chipset solutions,
- Reduced time to market,
- Wide experience with in-field upgrade from legacy software stacks,
- Ready for next generation services through a modular software architecture,
- Extensive diagnostic capabilities to improve Quality of Experience (see below the section on Epicentro® Management),
- Multi-layer security architecture.

## Main features of the Epicentro® Software Stack

### Traffic Processing and Forwarding

- Full IPv4/IPv6 protocol suite for routing, bridging and hybrid architectures - IPv6 dual-stack - 6rd
- Multiple LAN private and public subnets
- NAT/NAPT, port-forwarding, UPnP 2.0 IGD, ALGs, DMZ
- DHCPv4/DHCPv6 client, server, proxy
- IPv4/IPv6 DNS, DynDNS, DNS proxy
- PPP PPTP / L2TP / GRE / IPsec tunnels
- VPN termination and pass-through
- IGMP proxy and snooping
- 802.11n/11ac concurrent 2.4 & 5GHz WiFi AP, with multiple private and public (hot-spot) SSIDs
- 802.1x WiFi authenticator, Radius client, WPS 2.0
- Support for multicast video distribution
- State-of-the art, HGI / BBF compliant QoS engine
- Full dynamic configurability of L1-L4 and ALG-based packet classification criteria, multi-level queuing, policing, scheduling and shaping, L2 (VLAN) / L3 (DSCP) packet (re)marking

### Voice

- Multiple telephony interfaces (FXS, FXO), DECT Cat-iq
- ISDN TE/NT, with supplementary services
- Multiple voice codecs, T.38 / G.711 fax
- SIP2.0 stack, SIP/IMS Proxy – Supplementary services
- Interoperability with leading SIP Server platforms
- Services
- Local print server (LPD, SMB, IPP, RAW)
- USB NAS

- NTP, SNTP, FTP, TFTP, SSH and Telnet servers
- DLNA Digital Media Server
- HTTPs server with local and remote access, captive portal
- LAN host discovery and characterization, with exportable XML record

### Security

- IPv4/IPv6 stateful firewall, multiple configurable security levels
- DoS and vulnerability protection
- Parental control
- Secure FW upgrade with digital signature authentication
- Configuration encryption
- HTML escaping, anti-CSRF defenses, session cookies

### Local and Remote Management

- TR-069 protocol, TR-181i2, TR-098, TR-104 with proprietary extensions
- Multi-language Web GUI with authenticated and secure access
- Cisco-like CLI
- Online user manuals

### SW Modularity and Customizations

- Native OS and OSGi SW modules
- Multiple options for JVM and OSGi framework
- SDK with compilation toolchain for Native OS and OSGi modularity and GUI customization

### Diagnostics and Logging

- Packet statistics gathering on all WAN and LAN interfaces, and QoS queues – Configurable XML event logging





## Epicentro® Management

The Epicentro® stack is an element of a wider Device Management software solution family, which also includes the Epicentro Professional Management Platform (PMP), and the Epicentro Troubleshooting Suite (TSS).

- The **Epicentro PMP** is a cloud-based carrier-class Access Control System (ACS) platform for remote management of CPEs based on TR-069, supporting automatic service provisioning, control, assurance, secure massive firmware upgrades, device inventory management and performance monitoring.
- The **Epicentro TSS** leverages big-data technologies to collect performance data and usage statistics from CPE and IoT devices in from any networks. The suite uses results of either single tests or scheduled test campaigns for problem resolution and proactive diagnostics, to facilitate troubleshooting from help-desk or off-line KPI analysis.

### Value proposition for Epicentro® TSS

A service provider network generates huge amounts of data that The ADB Epicentro® TSS can then transform into actionable insight that unlocks new value.

The TSS enables:

- **Predictive Analysis** - Identify service degradation and increase efficiency in degradation analysis to prevent problems before customers notice, thus reducing customer complaints and churn.
- **Proactive Analysis** - Boost root cause analysis to enable rapid problem resolution.



ADB has a 20 year heritage, successfully delivering over 100 million devices to service provider customers across the world. We deliver connected solutions that marry the technical challenges of TV, interactive media, IP connectivity and consumer experience to meet the industry specific requirements of our customers within hospitality, healthcare, education, stadia, retail and a whole host of business sectors. ADB is embracing the future of the connected world. Alongside our proven vuTyme, our innovative Internet-of-Things platform provide a stepping stone to help our customers take advantage of the next wave of opportunities that connect smart appliances with internet technologies and enable exciting new services and improved operational efficiencies.