AT&T VPN Express Service
Commitment to Enterprise Networking

AT&T VPN Express Service Overview

AT&T VPN Express Options

AT&T VPN Managed Options

SLAs

Web-based Reporting and eServicing

Awards and Accolades
The evolution to solutions

From...

Complex, multi-vendor, corporate managed solution

...to

Reduce complexity and potentially lower costs

Integrated solutions

- MPLS network foundation
- Voice and collaboration
- Remote locations
- Mobile productivity apps, fixed mobile convergence
- End-to-end management
- Security services

Integrated and automated experience - One AT&T
AT&T VPN Express Service | Basics + app gateways + extra reach

### VPN
- Network-based (MPLS)
- Managed and unmanaged options

### Access
- FR Encap/PPP/Ethernet/PL
- Broadband/DSL
- Wireless

### Value-Added
- Voice over IP
- IP Telephony and Managed LAN Service
- Video conferencing
- Cloud-based apps & infrastructure

### Security
- Remote access & managed tunneling
- Managed firewalls
- Intrusion detection
### AT&T VPN Express services principles | Enabling business success

#### Application enablement
- Compatible and flexible service components
- Easily add locations and applications over IP
- Multiple access options

---

#### Integration with wireless
- Mobile devices are an extension of corporate VPN
- Remote access virtually anywhere, on any device
- Single global client, in many operating systems, with same user experience

---

#### Management capabilities
- Industry-leading customer visibility, control and command portal and tools
- Flexible management options
- On demand online resources

---

#### Streamline IT operations and speed up application deployment and scaling

#### Empowering mobile employees with tools and resources away from the office

#### End-to-End SLAs
- Latency (within and between regions)
- Data Delivery (within and between regions)
- Site Availability
- Provisioning
- Time to Restore
- Jitter

#### AT&T Integrated Service Portfolios
- Access and Local Services
- Enterprise Mobility
- Hosting Services
- IP and VPN Services
- Security services and Business Continuity
- Voice over IP

#### Reduce operations Costs and save time

#### Integrated, Commercially Available Tools in a Single Platform
- Intelligent Correlation Engine
- See and React to Degradation

---

© 2016 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.
AT&T VPN Express Service
Benefits

- Application awareness
- Scalability
- Agile, reliable, flexible any-to-any connectivity
- Easy access to reporting / tools
- Industry-leading Service Level Agreements
- Meshed network with Class of Service
- Built-in Disaster Recovery

*AT&T VPN Frame, ATM & DSL Ports are on Sales Hold and Unavailable to New Customers
Class of Service

Prioritizing your traffic

Customer Edge (CE) Router Sets CoS

Traffic Flow

Provider Edge (PE) Router Reinforces CoS Traffic at Ingress

Provider Edge (PE) Router Acts on CoS Traffic at Egress

Class I
- VOIP

Class II
- Video

Class II
- SAP, Oracle Applications

Class III
- Web Traffic

MPLS Enabled Network
IP Protocol Version 6 (IPv6) enables a larger, more robust IP Address space to accommodate the growing demand for IP-enabled devices currently used throughout the world. AT&T VPN IPv4/IPv6 Dual Stack enables transitioning from an IPv4 addressing space to a IPv4/IPv6 addressing space. Dual Stack ports can support both IPv4 & IPv6.

**Benefits of IPv6**

- Expands address space
- Simplifies network management and routing
- Platform for future applications
- Integrates end-to-end security
- Enhances mobility applications
AT&T VPN Express Feature Options
Multiple Logical Channels on a single MPLS port

No Unilink

With Unilink

CE = Customer Edge Router
PE = Provider Edge Router
AR = Access Router

© 2016 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.
Diversity options

Global availability

**MPLS Port Service Diversity Option**

Example

Newark, NJ

**MPLS Port POP Diversity**

Example

London, UK

© 2016 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.
Port Level CoS on FR Encap IP Ports

- Logical Channels are defined without a predetermined bandwidth
- All Logical Channels can simultaneously burst to port
- COS Profiles are applied to the port
- Site-to-site performance across ALL Logical Channels are affected when the port is congested
- Available on FR Encap IP ports
AT&T VPN Express Managed Feature

Options
Benefits of a managed CPE solution

**Experienced Engineering and Operations Personnel**
- Network design and consultation
- Service Delivery and Service Assurance

**Designated Global Project Implementation Manager for Large projects**
- Global Single Point Of Contact (SPOC) provides coordination and accountability for global implementation of project

**Order Managers (OMs) for site implementations**
- Local/Regional SPOC accountable for customer at site delivery level
- Responsible for all aspects of equipment and facilities delivery to the site (e.g. access circuit, Port, CSU, router, Test & Turn Up, etc.)

**Proactive Monitoring, Diagnosis, Trouble Resolution and Notification**
- 24 x 7 x 365 proactive monitoring, ticketing, auto diagnosis and resolution of each site, circuit, and CPE
- Proactive notification of issues to the customer
- Resolution of identified router software bugs and configuration issues.
- Single point of contact for CPE, PTT, ILEC etc.
- Site to Site SLAs vs. Port to Port SLAs
- Increased visibility into network and performance issues, up to Application level reporting including near real time trouble shooting capabilities
End-to-End management

Increased level of management support

Design ➔ Access ➔ Manage

Customer Site A ➔ Customer Site C ➔ Customer Site D ➔ Customer Site B

AT&T Global Network

AT&T End-to-End Management
Management options

**CPE management options**
- Basic Transport option
- Basic Transport plus a Managed Router with Internal CSU
- Basic Transport plus a Managed CSU-Probe with or without Enhanced Reports
- Basic Transport plus a Managed Router plus Managed CSU-Probe with or without Enhanced Reports
- Basic Transport plus a Lite Managed Router

**Support of hybrids**
- If Transport, all sites on the network required to be Transport
- If Managed, all sites on the network required to be Managed
- For a Managed network, the level of management can be selected by site.
Managed CPE options to meet your needs

With Managed Router

• AT&T technicians are provided onsite to cable, install and turn up Managed Router and related hardware
  – For customers with onsite technicians in US, option for customer self-install with AT&T telephone support

• AT&T provides and owns the Managed Router, eliminating need for capital investment by customer
  – For customers who need to keep the CPE on their books, option to order/own the new managed router

• Onsite 4 hour parts and labor support for hardware related problems with Managed Router.*
  – Lite Managed Router option for customers with less stringent hardware fix times in US

• AT&T takes care of WAN interface, routing, traffic classification etc. so customer can focus on their core business and LAN IT functions

• Detailed Performance Reporting including Port, IP and Class of Service level utilization, data delivery, latency and jitter reports

• Required to deliver overlay services like IP-Telephony, Tele-Presence and others

With Managed CSU-Probe with Enhanced Reports

• AT&T technicians are provided onsite to cable, install and turn up Managed CSU-Probe and related hardware

• Extends Performance SLAs out to customer sites

• Application level performance reporting and virtually real time trouble shooting capabilities from layer 1 through application layer

• VoIP reports including complete call detail records, call quality score

• Traffic capture capability on non-managed router sites

• Option to have managed CSU-probe only (without enhanced reports) for customers looking to extend SLAs to the sites but who do not require extensive reporting/troubleshooting capabilities.

• Available with or without Managed Router

* See Service Guide for details
Managed resiliency options

- Single Router, Single Access Line and ISDN
- Single Router, Dual Access Lines (Optional ISDN)
  - Load sharing or primary/backup access lines
- Dual Routers, Single Access Line (Mandatory ISDN)
- Dual Routers, Dual Access Lines (Optional ISDN)
  - Load sharing or primary/backup access lines
- Each of the resilient configurations can have CSU-probe and Enhanced reports on one or both circuits
Virtually seamless network management

AT&T Integrated Global Enterprise Management System (iGEMS)

Access Services
- e-Bonding
- e-Enable
- Web Access

Monitoring and Management Services
- Fault Performance Monitoring & Event Filtering
- Event Correlation & Root Cause Analysis
- Domain Specific Directives
- Policy-Based Performance Directives

Platform Services
- Policy Management
- Security
- Directory Services
- Workflow Management
- End-to-End Service View

Integration Bus
- Ticketing
- Service
- Analysis & Reporting
- Inventory & Provisioning
- Design & Engineering
- Billing
- SLA Mgmt

© 2016 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.
Network diagnostics and maintenance

Proactive Monitoring, Ticketing, Resolution and Notifications

Monitor for up/down alarms on CPE, WAN/LAN physical and logical interfaces

- Monitors end to end connectivity to the CPE equipment up to the LAN interface on the CPE
- Keeps state of each interface, correlates events, creates tickets on outages
- Tickets are routed to the GCSC (Global Customer Support Center)
- Agents assigned to tickets proactively worked until resolved
- Engage Transport work center and access vendor as needed
- Update eMaintenance Ticket log
- Ticket status and dates available via AT&T Web Portal
- Dispatch AT&T technicians to the site for break fix and CPE replacements
- Customers are notified proactively via Email, Text or voice mail, if customer chooses to receive the notification
AT&T managed proactive ticketing process

- **ATT GCSC**
  - Create Tickets. Tickets routed to agents
  - Analyze and resolve the problems

- **AT&T Proactive Monitoring, Correlation and Ticketing Platform**
  - Correlated Events

- **AT&T Web Portal**
  - Reports Server
  - AT&T Proactive Monitoring, Correlation and Ticketing Platform

- **Customer Reports Server**
  - Ticket details sent to BD
  - Periodically Poll
  - Listen to Traps

- **Optional - Proactive Notification sent to customer**

- **Customer**
  - Customer can see the ticket Status on EM and BDMAP all the time

- **Poll**
  - Mgd CSU-Probe
  - Mgd CSU-Probe

- **Traps**
  - AT&T Managed CE Router
  - Customer LAN

- **Customer LAN**
  - Customer-Managed CE Router
  - Mgd CSU-Probe

© 2016 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.
AT&T associates and managers – available 24 x 7

**Entry Level – Tier 1.5**
- **Profile:** College graduate or 10 years network management experience with Basic certification and training including: IPV6, Cisco, Juniper, Edgemarc, basic and advanced troubleshooting
- **Service Assurance**
  - Reactive and proactive incident management, client notification, and vendor management
  - Own incident from start to finish while continuously providing customer with progress status

**Mid Level – Tier 2**
- **Profile:** Cisco CCNA, CCNP, CCVP or Juniper JNCIA Certification with 1-2 years of experience within GCSC
- **Service Assurance**
  - Management of logical network issues: routing, switching, configurations, software bugs
  - Global or regional work center structure

**Expert Level – Tier 3**
- **Profile:** Cisco CCNP, CCVP, CCIE, Juniper JNCIE Router Expert with 5-10 years of experience within GCSC
- **Service Assurance**
  - Complex technical issues management including issues within the Core Network
  - Global “Follow the Sun” operational model
AT&T VPN Express SLAs
Assuring network reliability and performance

- Demarcs vary by AT&T VPN service type
- Consult the AT&T VPN Service Guide for full Service Level Agreement details including SLA and country availability
AT&T VPN Express with Value-Added Services

Performance
Application Performance Management for your critical business applications. End-to-end performance management for network components, transport and applications.

Agility
AT&T Transport and Access flexibility from Managed Internet Service to Private Line DSL Copper, Ethernet or Fiber. Remote Access options, e.g. broadband, cellular.

Control
AT&T Web Portal provides you a customized view into your managed infrastructure, including service ticket management, reporting, billing, and more.

Security
AT&T IP Security Services offers for your security needs for IP networking from Personal Firewall to Network-Based Firewall and Intrusion Detection.

The VPN Solution that fits your needs today and in the future.
Web-based reporting and eServicing
AT&T Web Portal

A consolidated, highly secure, reliable customer extranet. Manage your AT&T services conveniently via the Web – anytime, anywhere via a PC with Internet access.

To achieve our vision and enable you to manage your communication needs better, we are investing in leading-edge technology.

Key Benefits

- Focus on value-added, self-servicing tools
- Empowers our customers to manage their own telecom resources
- Simplify and redefine our customers’ experience
- Lower their costs
- Generate revenue
- Save time
- Improve our customer’s experience with AT&T tools
Customer Home Page

• Customized Home Page
• Frequently used Applications
• User friendly navigation
• Support available online

Alarms, Tickets, and Orders Summary with link to Network Map tool

Applications
Applications menu

A full range of online tools available to you, just Click and Go!

After you complete your AT&T BusinessDirect® registration, you can access applications to help you manage your account and services.

- Report and Track Troubles
- Service Level Agreement
- View Business Reports & Information
- AT&T Common Backbone
- View BusinessDirect Map
- Customer Information
View Map

Features

• View your network at a glance on an electronic map of the world and get underlying detail at the click of a mouse

• View your inventory at the site and network level across AT&T services

• Receive proactive notifications and perform many functions – all in one place

Key Benefit

• Work more efficiently by executing multiple tasks with a single tool
Report and Track Troubles

Features

• Report a trouble and track its resolution quickly and conveniently

• All electronic tickets for AT&T services flow directly to AT&T back-end systems without human intervention, so troubles can be resolved significantly faster, enabling services to be restored sooner.

• Customers can check near real-time status information on their tickets, provide updates and escalate online.

• Customers can view a running thirteen month window of trouble ticket history from a reporting perspective to analyze trouble conditions.

• Launch circuit tests (US only)

• Save time on phone calls to report trouble or seek status.
View Business Reports & Information | Managed router feature

- Analyze the performance of your network quickly, easily, any time
- Easily view current or historical performance
- Make informed decisions about your network

**Access Link**
Provides VPN port measurements obtained from the CE router WAN interface

**CE Router COS**
Provides bandwidth usage defined to Class Of Service (COS) and Logical Channel, with Policing measurements

**CE Router Performance**
Provides measurements pertaining to CE router buffer, CPU, and memory usage

**LAN**
Provides measurements obtained from the CE router LAN interface

**Site Availability**
Provides site-level availability measurements determined by management responses from CE router interfaces

**Site to Site**
Provides end-to-end availability at the site level, and end-to-end performance at the COS level for predetermined pairs of customer sites

**Dashboard**
Provides Top 10 VPN Port usage and Top/Bottom 10 COS measurements
AT&T VPN Express Enhanced Reports architecture

Technologies Used
• The CSU-Probe is placed between the Customer Edge (CE) Router and the network termination equipment. It passively collects measurements without adding management traffic to the network, storing the information locally until requested by the Reports Server.

Service Delivery
• The Reports Server (located at the AT&T Management Center) collects measurements from the CSU-Probes
• The CSU-Probe is managed and monitored by the award-winning AT&T integrated Global Enterprise Management System (iGEMS) platform
• The Customer accesses the Enhanced Reports tool via the AT&T Web Portal

Features and Benefits
• No CE Router dependencies
• Passive Data Collection – No network or CE router overheads
• Layer 1 – Layer 7 measurements provided
• Delivers an Interactive near Real-Time troubleshooting toolset
• Site-to-Site pairing of probes provides latency, jitter, and data delivery measurements
• Measurements are obtained on demand without massive collection pulls ... only the requested measurements are sent to the Enhanced Reports Server
• Ideal for large sites such as headquarters and data centers, or sites which require the capture of a large range of measurements
**Select AppFlows**
Delivers detailed views of the individual application flows across the entire infrastructure to isolate issues between the application, server, and the network

**Select AppSummary**
Dynamically identifies applications and performance across the enterprise

**Select Back-in-Time**
Presents detailed dynamic historical visibility and the ability to scroll back through time while navigating rapidly between layers of the protocol stack

**Select Class-of-Service**
Provides in-depth visibility into IP traffic classification to allow you to verify the applications are prioritized correctly and not exceeding thresholds

**Select Network Troubleshooting**
Offers live, virtually real-time monitoring and troubleshooting of network and application performance

**Select Service Summary**
Provides a single-screen view of status counts, errors, and health indicators

**Select VoIP**
Delivers near real-time detailed VoIP analysis, measuring VoIP metrics per individual call

**Select Traffic Capture**
(Not available with AT&T VPN Managed Router Feature) Delivers a full-function protocol analyzer
**MPLS Port LC list**
An inventory report, which includes Circuit ID, Access Speed, VPN Name, Location of Site and Provider Edge Router, Protocol Type, COS Profile, etc.

**MPLS Port LC performance**
- Monthly, weekly, daily and hourly Ingress and Egress utilization
- Peak and busy hour utilization over measurement interval in ingress and egress direction

**COS traffic**
- Monthly, weekly, daily and hourly Ingress and Egress usage
- Peak usage over measurement interval in ingress and egress direction

**COS drops – discards at the CoS level**
- Monthly, weekly, daily and hourly ingress traffic exceeding allocated bandwidth
- Peak and busy hour ingress traffic exceeding allocated bandwidth
- Monthly, weekly, daily and hourly egress drops for each CoS
Order Business Services

The new look and feel includes:

- Real-time MACD order initiation allows for fast network changes
- Robust searching by service, circuit or address
- Advanced location view and filtering
- Simple point-and-click navigation
- Current view of recent order activity
View Order Status

• Easily track your AT&T Business Services orders online in near-real-time.

• With the new web-based, stand-alone “AT&T Electronic Order Status Manager” application, you can monitor the status of your orders virtually anywhere and anytime from your desktop, laptop or mobile device.

• You can also submit changes and updates to your orders – all in one convenient place – as you enjoy round-the-clock access to your order details and status on the web.
Awards and accolades
AT&T a Leader in the Magic Quadrant for Network Services, Global


Access the report here

This Magic Quadrant graphic was published by Gartner, Inc. as part of a larger research note and should be evaluated in the context of the entire report. The Gartner report is available upon request from AT&T. The Magic Quadrant is copyrighted 2015 by Gartner, Inc. and is reused with permission. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner’s research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally, and is used herein with permission. All rights reserved.
The US-based operator serves a diverse portfolio of business customers throughout the world, including multinational corporations; small businesses; government, education and medical organizations; and wholesale customers.

It made significant investments in infrastructure and services during the entry period. It also made great strides in its home market, buying satellite TV provider DirecTV, and entered Mexico with the acquisitions of mobile operators Iusacell and Nextel, through which it is working on the creation of a single North American service area.

Access the report here.

“Whether it’s capital investment, market acquisition, new services, technology innovation...it has all been going ahead at AT&T”