White Paper

THE BUSINESS CASE FOR HYBRID NETWORK UNIFICATION

Maximizing performance, continuity and IT savings

Enterprises need uninterrupted business continuity for critical applications delivered over their global networks, but face an explosion of bandwidth requirements for less critical applications. Pressures on IT departments to reduce expenses are stronger than ever, making purchases of additional bandwidth difficult and often unaffordable. A solution gaining momentum in large enterprises is combining the carrier-class quality and availability of MPLS networks with the high-bandwidth capacity of a low-cost Internet VPN - a hybrid networking strategy.

While enterprises can better serve their business needs by deploying two or more WANs, questions arise about what trade-offs need to be made. At issue is not only the ability to create a hybrid network with MPLS and Internet VPN between datacenters and branch offices, but also the ability to control, optimize and accelerate applications combining the mutual benefits of each network with unified management.

Ipanema Hybrid Network Unification extends the concepts of WAN Governance to automatically monitor, control, accelerate and select the best paths for business applications across two or more networks. Enterprises that implement Ipanema Hybrid Network Unification:

- Guarantee unified application performance across [MPLS + Internet] networks
- Improve business communication continuity
- Exploit large network capacity at low cost
- Benefit from Internet immediacy and ubiquity
- Turn back-up lines into business lines

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Beyond the Network…

"Hybrid Network Unification by Ipanema provides a fully integrated Visibility, Control and WAN Optimization feature-set that ideally combines Internet VPN and MPLS in parallel to maximize performance and continuity over our global network, while minimizing our IT cost – all of this from an All-in-One system."

Stuart Miles, Central Infrastructure Service Manager, Rhodia

Rhodia
Chemistry is our world, Responsibility is our way

"With Ipanema's hybrid network unification solution, we can fully use the global capacity of our 2 networks and have a 100% availability and performance guarantee for our business applications, at anytime."

Koen Tacq, Infrastructure Services Manager, Vandemoortele

vandemoortele

"Whilst deploying redundant networks has become widespread, being able to manage the multiple infrastructures efficiently remains challenging. What customers really want to achieve is business communication continuity through multiple redundant networks while at the same time optimizing their network costs and applying application performance guarantees. This is exactly what Ipanema Hybrid Network Unification brings to our customers."

Steve Howarth, Product Manager Applications & Security, Cable & Wireless

Cable&Wireless

The business case for Hybrid Network Unification

CONTENT

IPANEMA TECHNOLOGIES

Ipanema develops next-generation solutions enabling any large enterprise to have full control over their global network. Ipanema's unique patented Autonomic Networking technology, guarantees business application performance for each user, no matter where or when. Ipanema is used extensively by many large telecom operators as well as by large multinationals across all market segments, including banking and finance, public sector, energy, pharmaceuticals, automotive, IT and others.

ABOUT THIS PUBLICATION

Ipanema has designed and created this publication primarily as an educational resource for chief information officers (CIOs), senior management and IT management. Contents of this publication are intended to inform, educate and introduce senior executives to the subject of Hybrid Network Unification and to enable further investigation for application in specific large enterprise environments.

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1. EXTRACT FULL VALUE FROM A HYBRID NETWORKING STRATEGY: MOVE FROM TRADE-OFFS TO THE BEST OF ALL WORLDS

In today's business environment, enterprises need optimal application performance and non-stop business continuity across their global network. Requirements for additional bandwidth to support all applications and for back-up lines to match reliability targets wreak havoc with IT budgets as enterprises strive to control costs. At the same time, the increasing use of public cloud and SaaS (Software-as-a-Service) applications, as well as social networking and other less business-oriented online usage requires more bandwidth to ensure local Internet access in the branch office. This is leading more enterprises to investigate the trade-offs of a hybrid networking strategy that combines the high quality and availability of MPLS with the high-bandwidth capacity of a low-cost Internet VPN.

What are the trade-offs?

- Application performance is affected by lack of bandwidth and by distance. Must there be a trade-off between the higher performance and quality of business-grade MPLS networks versus the larger bandwidth and lower cost of less reliable Internet access?
- Business continuity requires redundant VPN accesses everywhere. Must there be a trade-off of guaranteed SLAs for lower cost availability?

While hybrid networks offer a sensible alternative to expanding value-priced MPLS bandwidth, they need to be an enabling technology to operate them efficiently and minimize the trade-offs in performance, continuity and costs. The following pages describe the issues and how Ipanema Hybrid Network Unification combines the best of both worlds [MPLS + Internet] to help enterprises extract full value from a hybrid networking strategy, including real-world case examples of benefits at leading companies.

2. WHAT IS HYBRID NETWORKING?

Hybrid networking in the context of this discussion is the simultaneous usage of different networks - **MPLS and Internet VPN** - to interconnect the enterprise's headquarters, datacenters and remote sites. Hybrid networking aims to improve the performance and availability of business applications delivered over networks and to reduce IT costs. There are other types of hybrid networks, combining:

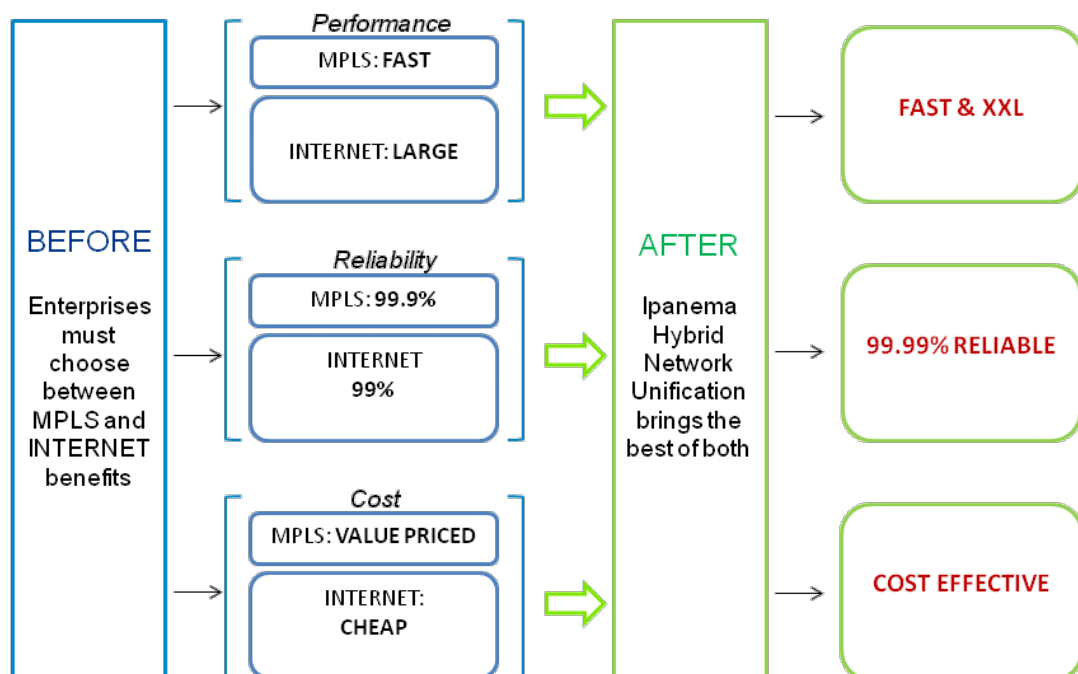- Different telecom operators in an [MPLS + MPLS] model

- Different transport technologies: MPLS and carrier Ethernet services
- Different application delivery models: private data center and public cloud

While not the focus of this discussion, the concepts of Hybrid Network Unification as described herein apply to all of the above.

3. WHAT IS HYBRID NETWORK UNIFICATION?

Hybrid networking is not a new concept, but has been complex to implement. As a collection of independent networks, performance and continuity have been less than optimal, mitigating the expected business benefits.

Ipanema Hybrid Network Unification solution addresses the issue by managing multiple networks as one. It automatically monitors, controls, accelerates and selects the best path among the networks that comprise a hybrid for each individual user's traffic through dynamic "sense and respond" intelligence. It allows enterprises to guarantee application performance for every user anywhere, anytime while also achieving mandates to control IT infrastructure costs.

BEFORE

Enterprises must choose between MPLS and INTERNET benefits

Performance

MPLS: **FAST**

INTERNET: **LARGE**

Reliability

MPLS: **99.9%**

INTERNET **99%**

Cost

MPLS: **VALUE PRICED**

INTERNET: **CHEAP**

AFTER

Ipanema Hybrid Network Unification brings the best of both

FAST & XXL

99.99% RELIABLE

COST EFFECTIVE

Hybrid Network Unification takes a holistic view of Application Visibility, QoS & Control and WAN Optimization for all network traffic, starting with the enterprise's business objectives and dynamically aligning application performance accordingly.
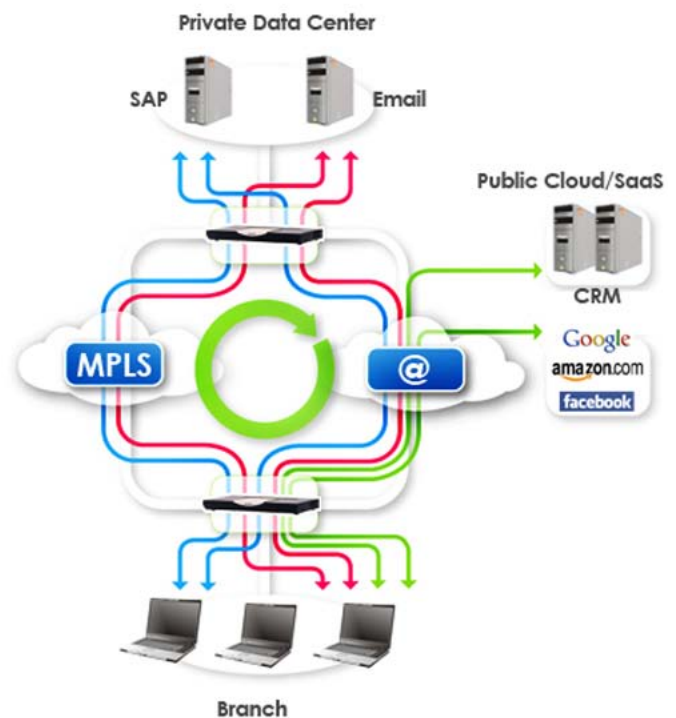
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It then ensures continuous alignment in real time through a unique and patented technology foundation. Its purpose is to enable any large enterprise to gain full control of their global network, guarantee critical application performance and make all sites feel like one - even over multiple networks - maximizing performance, continuity and IT savings at the same time.

4. PRINCIPLES OF HYBRID NETWORK UNIFICATION

Key Applications		
Application	Criticality	Sensitivity
SAP	Top	Business
Citrix (CRM)	Top	Business
VoIP (G729)	High	Business
Oracle	High	Business
Citrix (MS Office)	Medium	Business
Web (http://intranet/*)	Medium	Routine
Other	Low	Routine
FTP	Low	Routine
CIFS	Low	Business
Email	Low	Routing

Hybrid networks are unified for optimal application performance when the management of application flows is implemented in a common way - whatever the characteristics and number of available networks (usually two or three) between communicating sites. This implies the possibility of always selecting the "best network" to maximize value for the enterprise. **With the Ipanema solution, best network selection is performed in real-time, automatically**, taking into account three fundamental criteria:

1. **The instantaneous end-to-end performance of each available network**. This allows, for example, selection of the fastest network to guarantee performance for voice traffic and the largest network for large file transfers.

2. **The instantaneous load-weighted according to business criticality of application flows - for each end-to-end path across networks.** This provides very efficient network load balancing among all possible paths for maximizing the amount and the value of information that can be sent between sites.

Private Data Center

SAP   Email

Public Cloud/SaaS

CRM

MPLS   @

Google
amazon.com
facebook

Branch

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3. **The characteristics of each application.** This can include the type of traffic (real-time, transactional, background), the performance objectives (delay, jitter, bandwidth), the business criticality and the information sensitivity (level of privacy to apply).

Using these criteria, the Ipanema solution globally defines a high-level application performance objective (APO) for each important application (e.g. Voice, SAP, email, Salesforce.com, Internet browsing, etc.). For each user application flow, a "scoring" is computed in real-time, taking into account the corresponding APOs as well as the quality and load of each possible site-to-site path. The best possible path is then automatically deduced and applied in order to 1) match, at a minimum, the desired performance objective and 2) maximize network resource usage.

As a result, **combined networks appear and operate as one unified network with optimal availability, bandwidth utilization, applications performance and continuity at lower costs.**
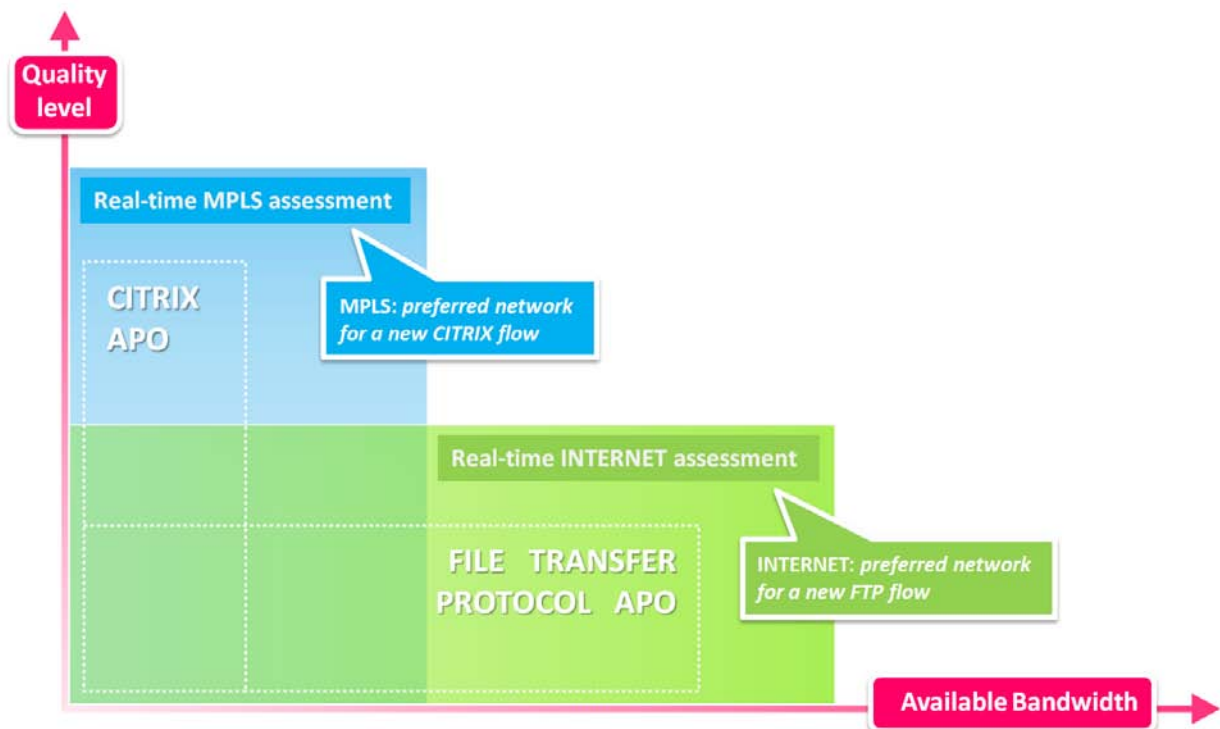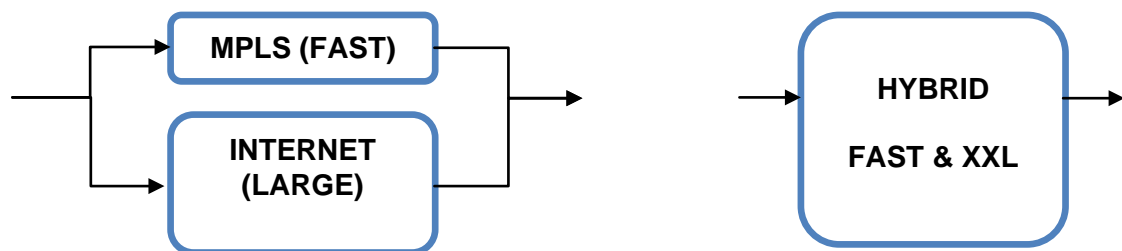

Dynamic selection of the preferred network according to the Application Performance Objective (APOs) and each network performance

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5. HOW HYBRID NETWORK UNIFICATION IMPROVES APPLICATION PERFORMANCE

Unifying hybrid networks improves application performance because of the following factors:

- Each network can be used simultaneously, which differs from traditional, passive, hot stand-by back-up lines. No access is a "back-up" line; all are active and potentially equal.
- Each application will use the best-suited network. For example, business critical ERP applications will usually take the high-quality MPLS network, but if the Internet becomes faster for any reason, then ERP applications will use it. Why not?
- Contrary to classical router-based PBR (Policy Based Routing), bandwidth usage is maximized using dynamic load sharing. For example, a site highly loaded by many ERP users may direct part of this business-critical traffic to the MPLS while another part will use the Internet - as long as this choice maximizes the global end-user experience.
- Application performance is delivered holistically. Just like each of the small wheels of a continuous track crawler absorbs uneven terrain, Hybrid Network Unification absorbs all of the quality issues of network performance, ensuring a smooth site-to-site delivery of application flows.

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───┤                           ├───►      ───►────┤   HYBRID     ├───►
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   └──►──┤    INTERNET      ├──┘                  │  FAST & XXL  │
         │     (LARGE)      │                      └──────────────┘
         └─────────────────┘
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Example: Financial services group needs to improve application performance
One of the world's leading providers of audit, tax and advisory services operates in more than 55 countries with more than 45,000 people and annual revenue of approximately US $7 billion. The company's IT department is highly decentralized with a yearly network budget of $13 million out of global IT budget of approximately $100 million.

The company uses a complex two-tier network, with a corporate WAN of approximately 120 concentration points aggregating local, in-country distribution. The local accesses, usually to small offices, benefit from low-cost broadband connectivity.

The business case for Hybrid Network Unification

The network uses the standard MPLS offering of a global telco. Concentration sites have dual 10 Mbps access to the network, while a few central sites and data centers benefit from a greater bandwidth - up to 155 Mbps. The network carries a few ERP flows (Oracle), collaborative applications (email, Sharepoint, etc.) and many large documents back and forth.

The corporate network, however, became a bottleneck – unable to cope with transferring electronic documents across the global organization faster and in larger quantities. Under growing pressure from the company's lines of business, the IT department needed to increase available network capacity – by a factor of three.

Options:

When contacted to address this need, telcos were able to propose sufficient MPLS bandwidth, but at a significant price increase. The company evaluated its options:

- Increasing MPLS bandwidth would increase network costs by a large factor that would be hard to justify to the company's CFO.
- Implementing better quality of service (QoS) and traffic control alone would not accelerate the transfer speeds of documents – a key performance driver.
- Deploying WAN Optimization devices with data compression was not possible, since all documents are encrypted when transferred over the network to guarantee their confidentiality.
- Adding another VPN based on low-cost Internet access to complement existing MPLS lines would increase bandwidth – without significant impact to network budget.

Resolution: Gain the best of both worlds by efficiently integrating lower cost Internet bandwidth with high-performance MPLS

The best solution is a hybrid network created by adding a large (although less reliable) Internet VPN to the current MPLS lines which use relatively low bandwidth but deliver carrier-class quality and availability. With unified traffic management, this dual network provides the company with the following benefits:

- Preserves the high quality and availability of the MPLS network for its main, critical applications
- Increases overall network capacity for document transfers (size and speed) with high bandwidth Internet access
- Optimizes total network price/performance and offers a viable solution to cope with further bandwidth demand inflation

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Combined with QoS & control, Ipanema Hybrid Network Unification allows the company to increase its transfer capacity by a factor of three, while preserving its network budget. The Ipanema solution guarantees best usage of this dual network - with critical applications prioritized to ensure availability and performance.

6. HOW HYBRID NETWORK UNIFICATION IMPROVES BUSINESS CONTINUITY

Hybrid Network Unification improves the continuity of business communications over networks by protecting not only against blackouts but also brownouts. There are multiple paths and multiple ways to balance traffic. The probability of a brownout is considerably reduced because of the increased amount of available network resources. Bandwidth scarcity is rare with all networks synchronized to work simultaneously and with many possible solutions such as intelligent network load balancing to ensure optimal application performance. In addition, the capability to instantly shift capacity during an outage of one network to the remaining capacity of the other network dramatically lowers the probability of a performance blackout for critical applications.
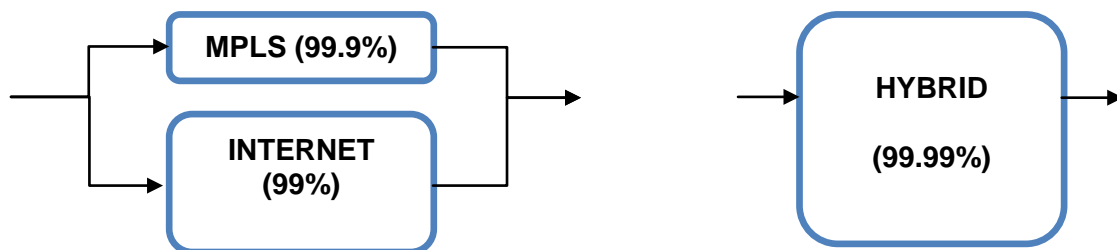
Example: Major retailer needs continuity during peak sales periods
A European electronics retail leader with US $3 billion in annual revenue uses its corporate network to connect its 300 stores, Internet storefront, several main offices, headquarters, two callcenters and two datacenters. The network carries voice, electronic payments, ERP, logistics flows and other types of traffic. All business processes are highly critical to the company: any network blackout would substantially impact its business, corporate image, customers' satisfaction and market competitiveness.

The company's IT department is highly centralized with a yearly network budget of $2 million out of a total IT budget of approximately $30 million. The network uses the standard MPLS offering of a national telco. Stores access the network with good quality and availability through SDSL lines at 2 Mbps. Main sites benefit from larger bandwidth - up to 155 Mbps for the datacenters. High availability is ensured in stores with an ADSL passive back-up line at 2 Mbps and at main sites and datacenters with active/active dual-access.

Despite sustained efforts by both the telco and the company, application performance continued to experience significant brownouts, notably at peak sales periods such as Saturday afternoons. Customers had to wait to conclude a purchase or for more information about a product. Employees already stressed with the higher number of customer interactions during peak periods had to endure the aggravation of slow application response times, impacting their productivity and customer service.

Options

Performance degradations came from an escalating usage of the network in the company's stores. Network traffic had increased considerably with new ERP releases, which were easier to use and more efficient, but notably impacted peak sales periods with the transfer of more data.

The following solutions were evaluated:

- Increasing MPLS bandwidth would increase network cost while not really solving the issue since document transfers, although faster, would still compete against transactional applications like electronic payment and customer invoicing.
- Implementing better QoS & control would raise performance levels for critical applications, but not accelerate documentation downloads.
- Deploying WAN optimization devices with caching and compression would download documents faster, but with a high cost and more complex IT management, which was not an option for the company since there are no technical staff in stores. Moreover, the performance of critical flows would not be guaranteed.
- Activating the stores' existing ADSL passive back-up lines would increase available bandwidth with no impact on network costs.

Resolution: Turn backup lines into business lines

The best solution was to activate the stores' Internet passive back-up lines and combine them with the 2 Mbps SDSL lines of the MPLS network in a unified manner. Now, the retailer:

- Preserves the high quality and availability of the MPLS network
- Utilizes the high download bandwidth offered by ADSL
- Maintains network costs at the same level (back-up lines are paid every month, even in passive mode)

Combined with QoS & control, Ipanema Hybrid Network Unification guarantees best usage of this dual network - with critical applications prioritized to ensure availability, performance and business continuity during peak sales periods. Application accesses and document downloads run faster than ever and with automatic protection against brownouts and blackouts.
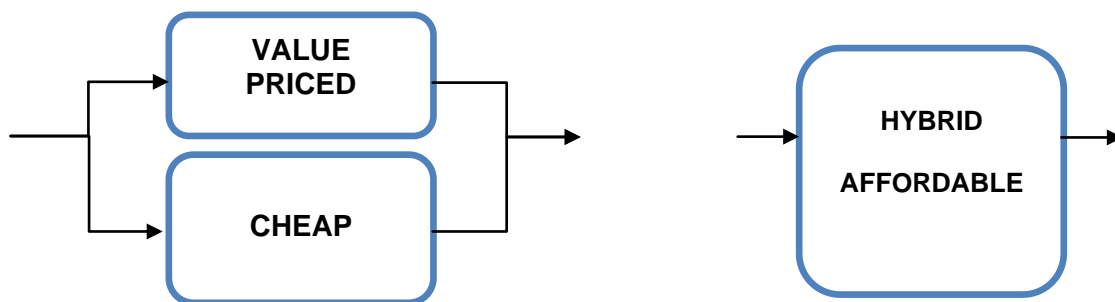
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7. HOW HYBRID NETWORK UNIFICATION REDUCES IT COSTS AND IMPROVES PRODUCTIVITY

Hybrid Network Unification improves IT budget in three areas: network costs, IT consolidation costs and IT management costs.

Network costs

As seen in the previous use cases, expanding network resources is financially difficult with MPLS networks alone in a world of bandwidth explosion, while the Internet can provide this additional resource for minimal cost. The ability to mix the best of each approach with Hybrid Network Unification achieves the desired objectives - high capacity, high reliability and high performance - at an affordable price.

Current implementations of Ipanema Hybrid Network Unification over global international networks in [MPLS + Internet] situations demonstrate that 60 to 80% of the traffic chose the Internet while 20% to 40% still prefer the MPLS access. This leads to a net decrease from 30% to 70% per transferred Gbyte for a hybrid [MPLS + Internet] unified network compared to full MPLS.

Although these savings can be used to simply decrease the network budget. Most of the time they are used to enable in a cost effective way IT transformation projects like global deployment of cloud-based applications (collaborative tools, CRM…) and datacenter consolidation (e.g. CAD/CAM - Computer-aided design and manufacturing tools - that require huge amount of data to be transferred between servers and desktop computers).

IT consolidation costs

The unique characteristics of Hybrid Network Unification improve opportunities to accelerate the execution of strategic IT projects like datacenter consolidation and desktop virtualization. These projects are known to have a huge impact on IT budget by decreasing the costs of licenses, hardware infrastructure and IT support.

The business case for Hybrid Network Unification

IT management costs

The automatic network control of Ipanema Hybrid Network Unification relieves IT staff from nearly all the painful, cumbersome and recurrent tasks linked with application performance management. Skilled IT employees can concentrate on other important tasks, such as managing application SLAs, providing meaningful KPIs to the CIO, implementing strategic IT projects and optimizing expenses.

- **Employees' productivity**

The suppression of application performance brownouts and blackouts using Ipanema Hybrid Network Unification to manage sufficient bandwidth, intelligent load sharing, QoS & control, and potentially WAN optimization makes users more productive. Saving employees a mere 5 minutes a day can improve their productivity by 1%.

- **Example: Major automotive parts company needs to control IT costs**

An industrial group focused on the production and sale of components and systems for cars and trucks operates in 35 countries with 60,000 employees and annual revenue of approximately US $12 billion. The network carries ERP, logistics flows, collaborative applications (email, Sharepoint, Office Communicator, etc.) and large CATIA (Computer Aided Three-dimensional Interactive Applications) files. The company's IT department is highly centralized with a yearly network budget of $ 8.5 million out of a total IT budget of approximately $ 150 million.

The company's international network connects 160 production sites, 60 R&D centers, 15 distribution platforms and two main datacenters. The network uses the standard MPLS offering of a global telco. Production sites access the network at 2 Mbps while other sites benefit from larger bandwidths - R&D up to 34 Mbps and datacenters up to 155 Mbps.

In preparing an RFP for a four-year WAN services renewal, the company's IT department wanted to increase available bandwidth by a minimum factor of four to accommodate the company's growing needs and support the global rollout of Internet-based GoogleApps as a collaborative framework. Pressure on the budget was strong, however: as a result of the global recession, cost cutting was an inescapable priority for the CIO.

- **Options**

Responding telcos were able to propose sufficient additional MPLS bandwidth, but at significant cost increases. The following options were evaluated:

- Increasing MPLS bandwidth would increase network cost by a factor that the company could not afford. Moreover, Internet flows would have to converge on a few centralized gateways which would introduce extra delays and probably impact GoogleApps user performance.
- Implementing better QoS & control would improve performance levels for critical applications, but not improve the download rates of large CATIA files.

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- Deploying WAN optimization devices would increase "virtual bandwidth," which can be spectacular, but after benchmarking other large deployments, the average bandwidth gain came with large discrepancies among applications.
- Adding another VPN based on low-cost Internet access to complement existing MPLS lines would increase bandwidth without significant impact to network budget while allowing a local access to public cloud applications.

- **Resolution: Unified traffic management through a hybrid network**

The best solution is the hybrid network. With unified traffic management, this dual network provides the company with the following benefits:

- Preserves the high quality and availability of the MPLS network for its business critical applications
- Increases overall network capacity using the high bandwidth offered by the Internet
- Optimizes total network price/performance and can even reduce costs with possible, future MPLS bandwidth price erosion
- Combined with QoS & control, Ipanema Hybrid Network Unification allows the company to increase bandwidth affordably and preserve its network budget. The Ipanema solution guarantees best usage of this dual network – with critical applications prioritized to ensure availability and performance, including CATIA applications running faster than ever.

8. WHAT IF HYBRID NETWORKS ARE NOT UNIFIED?

Without Hybrid Network Unification, IT departments must manually manage two or more networks separately. This includes unused back-up lines and load balancing without knowing network loads at any given instant and responding to application availability and performance issues as they are reported. These are slow, cumbersome tasks, delaying response to potential brownouts and blackouts. Moreover, optimal bandwidth utilization is never fully achieved, causing purchases of more bandwidth than needed and shortening the horizon for future bandwidth upgrades.

As noted by **John Burke, a principal research analyst with Nemertes Research**, "*WAN optimization is a near-ubiquitous strategy for improving application performance across long-distance network links, whether that network is the Internet or a corporate WAN… The process does not end once an optimization strategy and solution has been implemented, however. The next step is to plan for the future. For the most part, this means continually monitoring the activities and performance of the WAN long after the system has gone through initial pilot testing and is in general operation.*" [1]

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[1] John Burke, Nemertes Research, "WAN optimization lifecycle: Planning, executing and maintaining"

Without Hybrid Network Unification, these are separate tasks for each network that comprises the hybrid. Keeping the networks tuned for optimal performance on a real-time basis is impossible and planning for the future is much less accurate.

Nothing can reduce costs or improve performance more than an initiative to operate a hybrid as one network - automatically, in real time.

9. AUTONOMIC NETWORKING: THE TECHNICAL FOUNDATION FOR AUTOMATED GOVERNANCE OF HYBRID NETWORK

Hybrid Network Unification is business-driven and built on a convergent suite of features powered by Autonomic Networking.

A global network must adapt to new business applications. Historically, this has involved static, policy-based technologies and costly, manual network reconfigurations.

Autonomic Networking is a patented, objective-driven technology developed by Ipanema Technologies that dynamically and automatically adapts to network changes. This global, automated WAN optimization and application performance management system enables high-speed, second-by-second decision making by distributed components that can exchange information quickly and accurately.
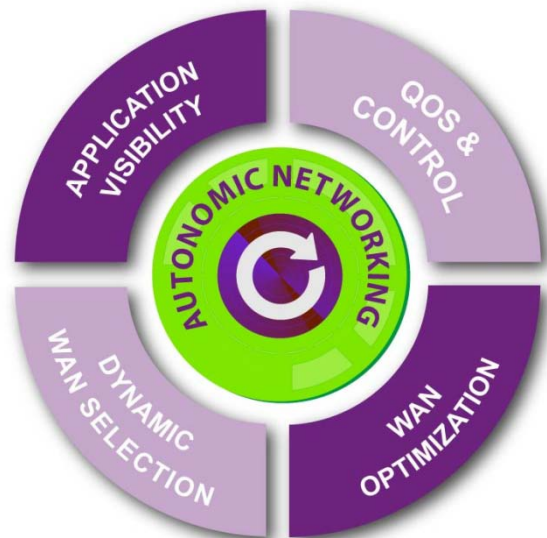
Most new IT projects do not require manual network reconfiguration with Autonomic Networking. For example, an enterprise rollout of Oracle Financial over an 80-site hybrid network can be supported with one mouse click instead of a six-month network reconfiguration and troubleshooting project, dramatically reducing deployment time and cost.

Hybrid Network Unification through Autonomic Networking is based on global network performance. Autonomic Networking uses physical devices that interact collaboratively and constantly to dynamically match hybrid network capacity with application demand. They ensure that pre-defined global network performance objectives are always reached.

Hybrid Network Unification with Autonomic Networking:

- Enables all network sites to operate as one
- Provides visibility for a clear understanding of application traffic on the network
- Guarantees the availability of applications to end users
- Optimizes and accelerates application traffic
- Simplifies monitoring and managing network management for optimal performance
- Improves control of network costs

10. ELIMINATING TRADE-OFFS: THE PAYOFF OF HYBRID NETWORK UNIFICATION

What is the real cost to an enterprise from poor application performance? This is a question that IT managers always find difficult to answer.

Line-of-business directors explain that when their employees get a poor Quality of Experience (QoE), they not only lose their time, but also their efficiency and motivation. Quality decreases. If they are interacting with customers, the business is impacted. From the directors' point of view, this builds a very compelling case for sustained user application performance. Applications that are unavailable (blackout) or poorly performing (brownout) can have enormous economic impact on the company.

For example, consider just employees' time: If each of 1,000 employees at an average salary of US $ 50,000 could save just five minutes per day working with more responsive business applications, the company would save more than $ 500,000 annually - approximately a 1% gain in productivity. Then add how this productivity gain impacts other parts of the company, customer satisfaction and perceptions of potential new customers. That 1 % gain in productivity could easily translate into a 10 % gain in profitability.

The need for hybrid networking today has many business drivers: better enterprise applications performance, faster deployment of applications and upgrades, reliable business communications continuity, lower IT costs and network access in locations where MPLS is unavailable.

Hybrid Network Unification eliminates the trade-offs - between the performance and quality of MPLS and lower-cost Internet VPN while still guaranteeing SLAs for the applications availability.

11. WAN Governance

In most organizations today, IT is so fundamental to operations, business performance and growth, that IT governance has come into its own as a critical element of corporate governance. Within IT governance, WAN Governance provides a unique way of approaching the management of a wide-area network from the viewpoint of enterprise performance. The purpose of WAN Governance is to:

- Implement IT aligned with business goals at the network level, making applications and data more effectively and easily available throughout the global enterprise
- Organize and manage resources to execute synchronized IT and WAN strategies
- Gain full control of network behavior
- Measure and monitor the performance of network applications
- Minimize network OPEX and CAPEX costs

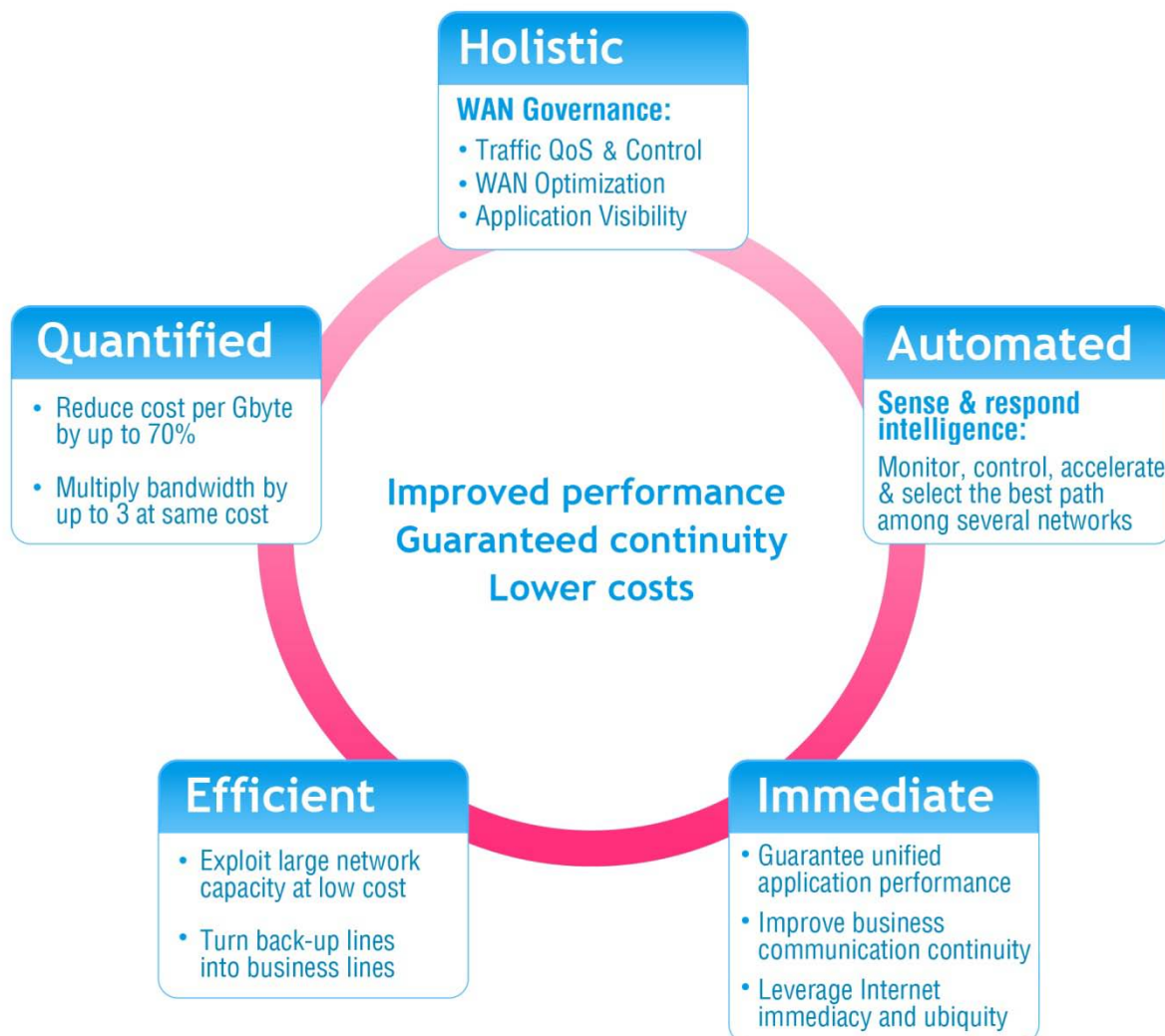| Corporate Governance	IT Governance	WAN Governance

Hybrid Network Unification applies WAN Governance to hybrid networks. It enables the true hybrid network - the "any/many" enterprise WAN that runs as one. It is business-driven and always aligned with business requirements. It ensures maximum application performance and business continuity - improving productivity, customer satisfaction and profitability - by automatically selecting the best paths for applications according to criticality. And it saves IT costs by exploiting unifying, managing and optimizing bandwidth usage of several networks to perform as one.

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12. MANAGING NETWORKS AS ONE: NOW AND IN THE FUTURE

IT managers today have an increasing number of choices to lower costs and increase business agility, including MPLS and Internet VPN, MPLS and carrier Ethernet services, server virtualization, internal clouds, public clouds and external private clouds. Whichever environment is chosen, application performance over the network will be the key to delivering expected benefits. **Enterprises that operate with a hybrid network will need to optimize their collective resources, which can only be achieved with Hybrid Network Unification to manage multiple networks as one – automatically, in real time.**

Holistic

WAN Governance:
• Traffic QoS & Control
• WAN Optimization
• Application Visibility

Quantified
• Reduce cost per Gbyte by up to 70%
• Multiply bandwidth by up to 3 at same cost

Automated

Sense & respond intelligence:
Monitor, control, accelerate & select the best path among several networks

Improved performance
Guaranteed continuity
Lower costs

Efficient
• Exploit large network capacity at low cost
• Turn back-up lines into business lines

Immediate
• Guarantee unified application performance
• Improve business communication continuity
• Leverage Internet immediacy and ubiquity

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Ipanema goes Beyond MPLS

Ipanema enables any large enterprise to institute WAN Governance for aligning and automatically managing WAN performance according to business objectives. Ipanema solutions guarantee business application performance and continuity in a cloud computing world - anytime, anywhere. Using Ipanema, enterprises:

- Guarantee user experience
- Accelerate business applications
- Unify hybrid networks
- Save on IT costs

ABOUT IPANEMA TECHNOLOGIES

Ipanema develops solutions enabling any large enterprise to have **complete control of their global network.**

Our unique patented technology guarantees business application performance for each user, no matter where or when. It simplifies network operations. It reduces costs.

In a nutshell, we guarantee critical application performance and **make a 1,000 site network feel like one.**

For more information, www.ipanematech.com | Wan governance (blog) | Users Group (Linkedin) | Follow Ipanema (Twitter)

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