



Application
Performance
Guarantee

Guarantee Unified Communications performance over your WAN

Transform your WAN as a business asset and improve your productivity with UC

- UC offer huge opportunities to the enterprise
- Whilst creating new challenges on the WAN
- Guarantee UC performance and protect your existing application portfolio with Ipanema

CUSTOMER QUOTE

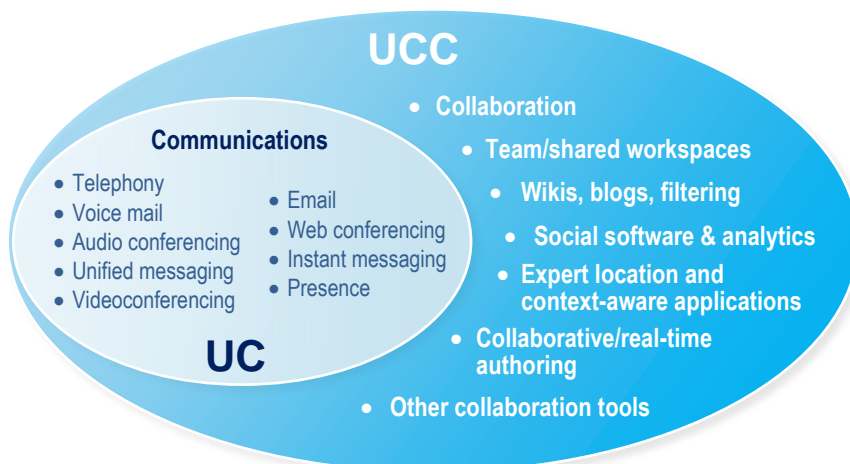


"Thanks to Ipanema, our network is totally aligned with our business requirements. We can guarantee the performance of our business critical applications including ERP and MS Lync anytime, anywhere, while reducing our IT costs."

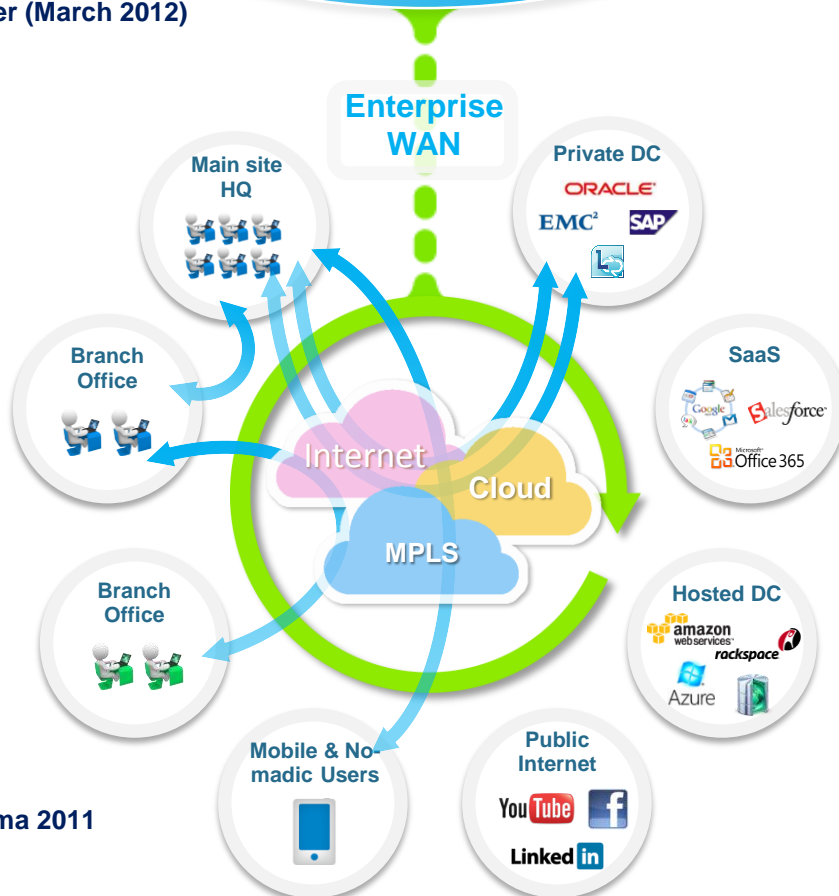


Philippe Faure,
Chief Information Officer, Gemalto

In partnership with: **e-Equal**



Source : Gartner (March 2012)



Source : Ipanema 2011



Guarantee UC performance and protect your existing application portfolio

Unified Communications (UC) is the integration of real-time communication services such as instant messaging, presence information, telephony, video conferencing and data sharing with non-real-time communication services like integrated voicemail, e-mail and SMS.

Unified Communications offer huge opportunities for the enterprise. They can improve productivity, simplify collaboration, improve teamwork efficiency and increase customer satisfaction while reducing related costs.

But these benefits depend on the end users' experience when using UC. Creating new challenges, not every UC project yields the anticipated ROI.

Guaranteeing the performance of Unified Communications as well as that of other business critical applications is key to maximize success and protect the corresponding investment.

Ipanema provides the enterprise solution to guarantee application performance over the WAN and to ensure the success of your IT transformations, including Unified Communications.

Reducing complexity by automatically taking control of each dynamic UC flow to guarantee the end-user experience, Ipanema is a “must-have” for Unified Communications:

- Secure and reduce WAN investments related to global UC deployment
- Guarantee UC end users' experience
- Protect pre-existing business applications from aggressive UC and video traffic
- Simplify WAN performance and management of application performance SLAs with real-time dashboards and KPIs
- Save operational costs and reduce TCO (Total Cost of Ownership)

About this publication

Ipanema has created this publication as an educational resource for enterprises who are planning, deploying or have deployed a Unified Communications (UC) solution. Contents of this publication are intended to inform and educate CIOs, IT infrastructure directors, network directors and network operations managers about the impact of UC applications on corporate networks and business applications performance. This white paper describes how to ensure the success of UC deployment while protecting critical applications performance.



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“UC technologies, especially VoIP, video and application sharing, have rigorous network requirements in the areas of bandwidth, latency and reliability. Additionally, the ability to perform network monitoring functions is critical to the ongoing success of UC deployments.”

Gartner¹

“With applications and services originating from inside and outside the infrastructure, networks can no longer be static...Networks need to be automated and dynamic...”

Forrester²

“Unified Communications demand additional TCO considerations that do not exist in legacy telecom equipment.”

Aberdeen Group³

¹ Ben Elliot and Steve Blood, “A Technology Framework for Enterprise Unified Communications,” Gartner, 15 March 2012, Publication Number G00226419

² Andre Kindness, Robert Whiteley and Eric Chi, “Focus Your Network Strategy on User Experience, Not Application Delivery,” Forrester Research, Inc., February 17, 2011

³ “The Total Cost of Ownership Benchmarking Study for Unified Communications,” Aberdeen Group, January 2012

UC offer huge opportunities to the enterprises

The purpose of UC is to clean up the mess created by the addition of discrete communication tools by consolidating all forms of real-time and non-real-time communications into a single, integrated solution. Unified Communications simplify the workplace and IT support so employees are more productive and resources used more efficiently. The ROI over the lifespan of a good UC solution promises to be enormous.

Unified Communications offer huge opportunities for the enterprise, with benefits including:

- **Improved productivity**

UC expand the integration between data and communications applications, promoting continuity across all business processes.

- **Easier collaboration**

UC feature a place where coworkers, business partners, and clients can come together and collaborate using advanced data sharing and communications devices.

- **Better customer satisfaction and competitive advantage**

With UC, the enterprise can quickly answer customer questions and provide better support. Customer retention, loyalty, and referrals ultimately improve the bottom line.

- **Cost Savings**

UC cut traditional telephony costs: decommissioning legacy PABX saves maintenance and operational expenses. With UC's IP telephony, enterprises are able to route internal site-to-site calls over the corporate data network, lowering long-distance costs, as well as maintenance and support costs. With video conference and screen sharing, enterprises also reduce travel expenses and office space, while running their business more efficiently and improving their employees' working experience.

UC create new challenges on the enterprise WAN

Aberdeen Group reports "Expectations for the lifespan of UC solutions are increasing...to last at least six years."⁴ The fact that a UC solution is likely to last longer than prior investments in IT systems increases the importance of its TCO. "UC are less capital-intensive, and TCO is a more applicable metric," advises Focus Group in its Focus Experts' Guide on UC.⁵

A substantial part of this TCO is directly tied to the enterprise WAN. **UC performance has to be guaranteed over the WAN to deliver the promised benefits**, and UC introduce significant complexity at the network level.

⁴ "The Total Cost of Ownership Benchmarking Study for Unified Communications," Aberdeen Group, January 2012

⁵ Jon Arnold and Dave Michels, "Focus Experts' Guide: Unified Communications," Focus Research, June 2011

Dynamicity of UC flows increases pressure on the WAN

The variety of technologies used by Unified Communications (including phone, email, instant messaging, audio conferencing, video conferencing and web conferencing) as well as the large number of protocols for data, voice, video, screen sharing, gateways, signaling, authentication, error detection and correction and UC management add strong pressure on the WAN and significantly increase the complexity of controlling UC for the IT department.

Furthermore, the dynamicity of UC flows makes their impact on the WAN very unpredictable, putting other business-critical applications such as SAP, Oracle and Salesforce.com at risk.

Even within a single communication, the traffic is dynamic. Audio traffic is sent from endpoints only when users speak. In a video conference, the source of traffic changes constantly as the active speaker and the previously active speaker stream their video while all other participants receive the video streams.

UC codecs have different requirements and can even be adaptive. Communication streams are not always the same. A codec may sense poor network quality and adjust to a higher bandwidth to include redundant patterns during a communication. Setting up an audio conference may cause switching from one codec to another. In addition, the data traffic associated with screen and application sharing can generate very dynamic bursts of traffic depending on the content shared, the screen resolution and how the users modify the content.

Fostering new usages like desktop sharing and peer-to-peer video communications, UC significantly increase WAN traffic

With UC, traffic on the WAN strongly increases and is more difficult to control due to its diversity. Each type of communication behaves differently across the WAN and the traffic matrix constantly changes from one second to the next.

For example, desktop video communication uses 300 kbps to 1Mbps per user. This is several times the average bandwidth provisioned on a typical enterprise WAN (usually 50 to 100 Kbit/s/employee). As a result, to mitigate that risk, many enterprises block desktop video, disappointing users.

Pre-existing business applications must be considered

Enterprises' senior management and lines-of-business can put a lot of pressure on the IT department to deploy UC. At the same time, CIOs and IT directors face another serious demand: the deployment of UC cannot impact the performance of the pre-existing applications that support the business, such as SAP, Oracle, Salesforce, Virtual Desktop Infrastructure (VDI), etc. While business critical applications typically generate less than 20% of the total WAN traffic; they might be severely impacted by the dynamic and expansionist UC flows. This is not a comfortable situation for IT managers.

Unmanaged WANs lead to increasing expenses

Early UC adopters have significantly increased their TCO by handling the above UC risks with excessive bandwidth upgrades – when not deploying a dedicated network. This overprovisioning means that enterprises are paying substantially more than they initially planned in network costs and, consequently, these UC projects do not yield the anticipated ROI. Moreover, UC deployment delays caused by required bandwidth upgrades and more complex IT operations add to their increase in TCO for Unified Communications.

Bad application performance puts UC success at risk

Ultimately, networking is about users who rely on the enterprise WAN for the business applications they need to do their job. Should a UC deployment be less useful than the legacy systems it replaced because of poor applications performance, or should it diminish the performance of pre-existing business applications over the WAN, the repercussions would be enormous:

- Employee dissatisfaction involving rejection of the new system,
- Decreased productivity instead of the expected improvement,
- Embarrassment for all project champions,
- IT accountability for additional spending to correct issues.

Conversely, if the UC project team properly plans for its impact on the WAN, the reverse is true. All project champions, led by IT, will be associated with enabling the enterprise to work more efficiently and more closely together, while reducing operational costs in the process.

Why WAN Optimization is not the right solution for UC

WAN optimization solutions mitigate the impact of low network bandwidth and high delays on application performance by using data compression, caching and protocol optimization. None of these techniques applies to UC. Voice and video codecs are already “self-optimized” and non-cacheable. Control protocols are already very efficient. Instant messaging and presence consume little bandwidth. On the other hand, UC real-time traffic requires stable delay, low jitter and guaranteed bandwidth in a very dynamic environment: exactly what is provided by Ipanema’s full set of integrated features.

Guarantee the deployment success of UC

“UC technologies, especially VoIP, video and application sharing, have rigorous network requirements in the areas of bandwidth, latency and reliability,” say Gartner analysts. “Additionally,

the ability to perform network monitoring functions is critical to the ongoing success of UC deployments.”⁶

Discrete, legacy network solutions such as WAN Optimization Controllers (WOCs) and Application Delivery Controllers (ADCs) are static and cannot manage UC traffic with its user-centric technologies.

Able to control the entire application traffic that runs over the WAN, Ipanema provides enterprises with a direct connection between application performance and their business requirements.

The Ipanema system recognizes that:

- 1) UC are not one application, but a suite of very different applications,
- 2) UC must peacefully co-exist with all other applications over the WAN.

Ipanema protects Unified Communications and guarantees the performance of the pre-existing business applications that share the network. With Ipanema, UC applications are:

- **Visible to the IT department** so the impact of UC flows can be fully understood by the IT service desk and communicated to business leaders with simple metrics, comprehensive KPIs and quality scores. This is important for CIOs, application directors and IT directors to understand how UC applications perform across the corporate network.
- **Controlled effectively** so that real-time flows inside UC (like voice) are prioritized above less critical applications like file transfers. Conversely, Ipanema prevents dynamic video codecs to expand beyond reasonable levels, ensuring that other critical applications such as SAP and transactional systems still always function to their required SLA.
- **Intelligently routed across the appropriate network** when deployed with a hybrid Internet + MPLS network. Ipanema ensures an excellent user experience and provides access to the large bandwidth UC requires (for example, video flows) at a reasonable cost. As an example, a possible use is to route voice streams over MPLS (strong quality requirement) while sending video traffic over the off-load internet link (non-business critical, but requiring high bandwidth)

As a result, the performance of UC is guaranteed:

- Users can use UC with an excellent quality
- The performance of the other business critical applications is protected against resource intensive UC
- Enterprises manage UC performance SLAs over the network with clear KPIs
- Enterprises control UC performance with consolidated and detailed dashboards
- Unified Communications delivers the benefits promised

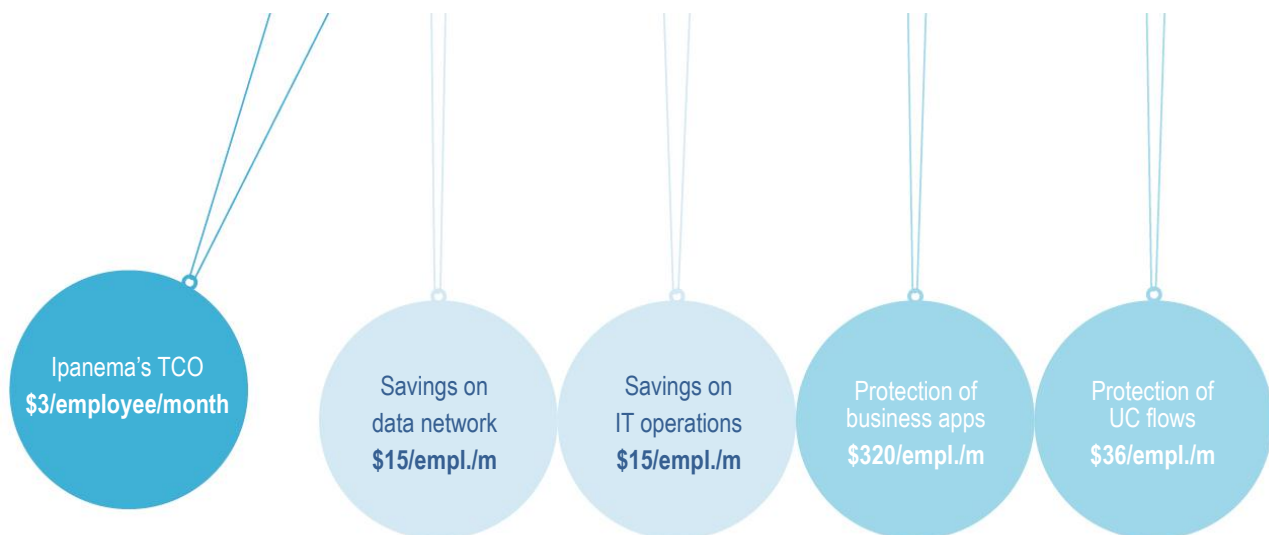
⁶ Ben Elliot and Steve Blood, “A Technology Framework for Enterprise Unified Communications,” Gartner, 15 March 2012, Publication Number G00226419

The emergence of cloud services and employees' use of personal mobile devices taught enterprises that their network could no longer be static. In the words of Forrester's analysts, "With applications and services originating from inside and outside the infrastructure, networks can no longer be static. Infrastructures will need to understand where users are located, what devices they have, and what they want, in order to optimize the right services and control where the requested service is going by leveraging networking resources on the fly. Networks need to be automated and dynamic."⁷

Start IT budget savings

High quality UC application performance improves how users can communicate, collaborate and work, eliciting quick and easy adoption enterprise-wide. UC co-existence with other business applications relieves the service desk from endless troubleshooting. Thanks to the Ipanema System, the full usage of all available network resources delays and minimizes bandwidth upgrades over the lifecycle of the UC solution. Ipanema's clear dashboards enable IT to govern the WAN, manage application performance SLAs and communicate application usage and performance to lines of business and senior management.

With Ipanema, the enterprise's network infrastructure is better positioned to absorb evolving technologies and reduce TCO not only for UC, but also for data center consolidation, cloud services, hybrid networking and Virtual Desktop Infrastructure (VDI).



Ipanema's nano TCO and benefits

⁷ Andre Kindness, Robert Whiteley and Eric Chi, "Focus Your Network Strategy on User Experience, Not Application Delivery," Forrester Research, Inc., February 17, 2011

A fully integrated system that guarantees UC performance anytime, anywhere.

Ipanema's self-learning and self-optimizing Autonomic Networking System™ (ANS) tightly integrates all the features to guarantee the best application performance: Application Visibility, QoS and Control, WAN Optimization, Dynamic WAN Selection and Network Rightsizing. It provides the enterprise WAN with the real-time flexibility to fully realize UC benefits, while protecting pre-existing applications.

APPLICATION VISIBILITY



The performance of UC applications over the corporate network is visible to the IT department. The usages and impact of UC on the network can be fully understood by the CIO, application directors and the service desk. UC performance can also be communicated to business leaders with comprehensive KPIs like Application Quality Score (AQS).

QOS & CONTROL



UC are dynamically controlled so that real-time flows, such as voice and video, are prioritized over less critical applications. The performance of other critical applications is guaranteed even with the presence of UC. Ipanema fully utilizes all of the WAN's available bandwidth, which further delays bandwidth upgrades during UC deployment.

WAN OPTIMIZATION



WAN Optimization works with ANS' other integrated features. Additional bandwidth reduction on redundant application (email, file sharing, etc.) will add to the solution savings.

DYNAMIC WAN SELECTION



Ipanema intelligently routes traffic for UC deployed over a hybrid Internet + MPLS network. Voice will take the fastest path while screen sharing will use the largest one. Moving to a dynamic hybrid network decreases bandwidth costs and ensures excellent user experience for UC's large-bandwidth applications.

NETWORK RIGHTSIZING



Ipanema provides a direct relationship between available bandwidth and achievable application performance SLAs to optimize network cost/performance tradeoffs. IT managers gain all the information necessary to decide network sizing policy for UC according to budget constraints and enterprise requirements.

Gemalto guarantees the quality of UC deployment with Ipanema

Gemalto, a world leader in digital security, anticipated the impact UC would have on its network before selecting a solution. The company chose Microsoft Lync for its UC capability and Ipanema to guarantee its success for more than 10,000 employees across 100+ locations in 45 countries.

Including the Ipanema system as part of UC deployment provided the application visibility, metrics and dynamic controls to guarantee UC performance, workforce productivity and enthusiastic end-user acceptance.

The combination of Microsoft Lync with Ipanema delivers a significant costs savings for Gemalto. Audio conferencing costs decreased by 90%. International calls now go through the WAN, enabling the company to pay only for the local portion of calls. Nomadic users who once relied exclusively on GSM increasingly connect to the Internet through Lync, because the sound quality is better. Gemalto is also looking at decommissioning their PBX, which will bring further savings in the near future.

Reducing UC networking complexity

Using Ipanema, IT managers simply define the grouping of applications according to performance objectives from the system's central management console.

Enterprise Applications		Application Perf. Objectives (per flow)				
Application name	Criticality	Bw (kbps)	Delay (ms)	Jitter (ms)	Loss (%)	Etc.
UC - Audio streams	Top	100	50	25	0-1	
UC - Video streams	High	600	150	50	0-1	
UC - Signaling	High	50	200	n/a	1-5	
UC - Conferencing	Medium	500	400	n/a	1-5	

Self-learning and self-managing the application traffic, the Ipanema system automatically understands and classifies each UC flow according to its priority level. It dynamically controls them to guarantee the performance delivered to users according to the defined objectives (even in the

most complicated traffic mesh and application mix). There is no need to speculate on the traffic matrix, or the number and activity of users.

The performance of all other business-critical applications is protected against the resource-intensive UC services.

IT managers control performance SLAs for UC, as well as for all the other applications, with clear KPIs like Application Quality Score (AQS) and the Mean Opinion Score (MOS). They can plan the network resources from facts, not assumptions.

Finally, the IT service desk understands the real-time performance from dashboards with the detailed views they need to allocate problems and troubleshoot them.



Make video and UC deployments a success with Ipanema delivering Polycom-Ready UC&C Network Performance and Optimization Solutions

Polycom, the global leader in open standards-based unified communications and collaboration (UC&C), is partnering with Ipanema to guarantee the performance of its video and voice collaboration solutions.

Ipanema Technologies has satisfied Polycom's extensive interoperability requirements and has been certified as Polycom-Ready. Polycom-Ready solutions, including end-user devices, network devices, and software applications are tested for interoperability with Polycom products and applications.

Polycom's RealPresence® Platform provides a unifying hub in UC environments. Using open standards-based interoperability, RealPresence works with communications and business applications from hundreds of vendors. The combination of Polycom + Ipanema allows the most reliable and efficient UC/video deployment.

ABOUT IPANEMA TECHNOLOGIES

Ipanema provides enterprises with a direct connection between application performance and their business requirements. With Ipanema Technologies, enterprises understand which applications use the network and automatically deliver guaranteed performance to each user. Enterprises can support their strategic IT transformations (like cloud computing and Unified Communications) and control Internet growth while reducing their IT expenses. Ipanema's customers range from mid-sized companies to enterprises with 1,000s of sites. Enterprises can use Ipanema as a product through an international network of certified channel partners, and as a service through Managed Service Providers and telecom operators' managed services. For SMBs, Ipanema is available as a service through Ipanema's AppsWork™ authorized partner network.

For more information, visit: www.ipanematech.com

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