



# Real-Time Collaboration: Architectural Requirements and Considerations

*Delivering Secure and Manageable  
Web Meeting Solutions*

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## Executive Summary

Real-time collaboration, also known as web meeting and web conferencing technology, are increasingly strategic components of business communications. As a result of the growing demand for these solutions, individual departments and workgroups often purchase real-time collaboration without IT's knowledge or input. The resulting duplication of point solutions increases an organization's total cost of ownership (TCO).

By setting standards and selecting a preferred vendor for real-time collaboration, IT can drive down TCO and improve overall utilization, availability and usability. Enterprise-wide, IT-driven collaboration standards make sense for IT and business users alike.

While vendors may address the requirements in different ways, enterprise goals for real-time collaboration technologies are straightforward. As described in detail here, such solutions must be:

- **Affordable.**

More so than other enterprise technology purchases, real-time collaboration TCO tends to exceed projections due to the high costs of maintaining a globally accessible real-time communications infrastructure. Look to vendor consolidation, low-cost deployment strategies, and on-demand solutions to lower TCO.

- **Available.**

The TCO of real-time collaboration must include the cost of downtime. As collaboration becomes more strategic to the business, the cost of downtime increases. A cost effective collaboration solution must therefore be highly available.

- **Scalable and high-performance.**

Business users increasingly demand sophisticated real-time collaboration functions such as rich multimedia. These video/voice/data requirements, coupled with performance and reliability challenges posed by the variability of Internet access (including dial-up links, ISDN, WiFi, satellite, and other bottlenecks) and the need to support large numbers of attendees, place stringent architectural requirements on collaboration solutions.

- **Supportable and manageable.**

Collaboration technology must be as usable and reliable as the telephone to avoid overwhelming help desk resources. Administrative tasks must be simple and highly automated to reduce the total cost of support and maintenance (TCSM.)

*Important things to consider when choosing a real-time collaboration solution include:*

- *Affordability*
- *Availability*
- *Scalability*
- *Performance*
- *Supportability*
- *Manageability*
- *Compatibility*
- *Specialized Needs*
- *Security*
- *Compliance*
- *Vendor Viability*

- **Compatible.**  
In most enterprises, specialized or non-standard computing platforms will be deployed. And, since real-time collaboration often involves external prospects, customers, and partners, it's impossible to know in advance the set of environments on which collaboration must run. Collaboration should be fully functional for all common operating system platforms and environments (e.g., network infrastructure and firewalls).
- **Specialized.**  
Business units have specialized requirements for collaboration applications such as customer support, training, and marketing. IT must select a collaboration solution that satisfies the unique requirements of each department.
- **Secure and compliant.**  
It's essential that a collaboration solution provide a trusted, secure environment in which to convey confidential business information. IT must examine the architectural, cryptographic, and authentication mechanisms employed by a collaboration vendor — a requirement that is imperative for interactions with partners or customers outside the firewall. Additionally, solutions must support user authentication, logging, and audit trail maintenance to comply with Sarbanes-Oxley and other regulatory requirements.
- **Provided by a viable vendor.**  
IT organizations need to standardize on solutions provided by a vendor with staying power, focused on real-time collaboration, and with a track record for supporting and maintaining its solutions.



*Real-time collaboration serves a variety of business functions throughout an organization, each with specialized needs. The best solution will answer the needs of users across the organization.*

## The Case for Consolidating Real-time Collaboration

### The Collaboration Inventory

One of the most striking aspects of real-time collaboration is the diverse set of business functions it addresses. Real-time collaboration is used by:

- **Marketing** to generate leads, increase brand awareness, and educate prospects
- **Sales** to present to prospects, close more business, and shorten sales cycles
- **Support** to quickly diagnose and fix systems for users and customers
- **Project managers** to coordinate activities and conduct status updates
- **Training departments** to develop staff, customers, and partners worldwide
- **Knowledge workers** to collaboratively innovate
- **Leaders to communicate**, align the organization, and inspire

These business groups possess specialized collaboration requirements. For instance, Support teams emphasize a streamlined UI for effective troubleshooting sessions. Training departments, on the other hand, employ sophisticated breakout rooms while marketing departments focus on registration, event tracking, and large-scale attendance. Each group's requirements are different, and an IT-driven collaboration standard must accommodate them all. Without IT's leadership, each of these groups is likely to procure silo solutions to address their unique needs.

As a first step towards setting standards for real-time collaboration, IDC and other practice leaders recommend IT managers inventory all of the collaboration solutions currently deployed, and understand the business drivers for each. The more point solutions deployed, the greater the opportunity for savings through consolidation.

It's also true that security and compliance risks increase as the number of point solutions multiply. Any TCO analysis should take into account such risks. Finally, IT should inventory internal and external (customer, partner, or prospect-facing) solutions and consider the benefits of consolidating on a single standard that supports both forms of collaboration.

*Standardizing on one real-time collaboration solution for the entire organization offers many benefits, including cost savings and management efficiencies.*

## **Opportunities for Efficiency through Standardization**

Recent research from the Service and Support Professionals Association and Tech Strategy Partners finds that 47% of IT spending goes towards the total cost of support and maintenance (TCSM). In other words, almost half of IT's budget is spent just keeping current systems running. In an environment in which IT is under more pressure than ever to deliver measurable business value, this TCSM spending is a significant barrier to success.

The first approach IT takes to reduce this level of spending is consolidation: standardizing on technology from fewer vendors. This is already happening with real-time collaboration: a recent CIO Insight survey showed a 12.5% increase year over year in centralized spending on real-time collaboration. Consolidation has a number of significant benefits:

- Cost savings through superior purchasing power with vendors and economies of scale
- Greater expertise in administering and supporting the product
- Centralized management, which is intrinsically more efficient than departmental management
- Increased user familiarity leading to lower support costs
- Higher utilization as all departments are made aware of the standard solution, affording more opportunities for ROI.

By standardizing on a real-time collaboration solution that also meets specialized departmental business needs IT can significantly lower TCO, deliver better service and support to users and eliminate the security risks of multiple point solutions.



### **License or On-Demand**

*One of the key decisions IT buyers make when selecting a real-time collaboration solution is whether to install and manage a licensed software product or whether to choose an on-demand solution. To a greater extent than with most enterprise technology purchases, collaboration depends on the network. It requires moving voice, data, and other rich media content, securely, quickly, and reliably. Just as the telephone network is purpose-built for carrying voice reliably, the real-time collaboration network must be purpose-built for real-time content.*

*Most enterprises that have investigated this trade-off have agreed with IDC's conclusion from its Executive Brief entitled Conferencing through Service Providers for Low Cost and Reliability:*

*"[Real-time collaboration] should drive productivity, not inhibit it. Because running multimedia communications services is not a core competency for most companies, many will find that entrusting this responsibility to someone else is the best way to make sure conferencing features are useful and that business objectives are met. Service providers offer expertise and economies of scale that are not typically available internally."*

## Key Requirements

IT organizations implementing a standard for real-time collaboration should develop a set of requirements based on the specific needs of the business units as well as their own drivers for TCO, security, and supportability.

### **Low Total Cost of Ownership (TCO)**

A key driver in IT's drive to lower TCO is an assessment of the direct costs of real-time collaboration solutions.

The table on the next page lists the direct costs of collaboration solutions.

Table 1: Direct Cost Elements for Collaboration Solutions

As the table shows, there are many TCO elements for conferencing and collaboration solutions. Depending on the model (see sidebar pg.7: “License or On-Demand?”), individual elements will be higher or lower. This means that IT must take a comprehensive view of cost, emphasizing the “T” in TCO.

Cost Component	Key Drivers	Comments
<b>License fee (software solutions) or use-based fees (on-demand solutions)</b>	<ul style="list-style-type: none"> <li>• Usage volume</li> <li>• Periodic variation in demand</li> <li>• License vs. on-demand mode License fees for software should be substantially lower than use fees for on-demand given the other costs associated with software.</li> </ul>	<p>Demand for collaboration is often variable: avoid paying for the maximum number of connections when they're not in use.</p> <p>Working with a single vendor provides greater purchasing power to drive down cost.</p>
<b>Vendor support and maintenance fees</b>	<ul style="list-style-type: none"> <li>• Patches</li> <li>• Upgrades (in some cases)</li> <li>• Technical support</li> </ul>	<p>Applies to software solutions only</p> <p>Identify whether major number releases are included or must be budgeted separately</p>
<b>IT project costs</b>	<ul style="list-style-type: none"> <li>• Degree of customization required</li> <li>• Effectiveness of vendor support and training</li> <li>• Ease of configuration / tool effectiveness</li> </ul>	<p>Look for a solution that meets most or all business requirements out of the box.</p> <p>Require proven administrative and end-user training.</p>
<b>IT management costs</b>	<ul style="list-style-type: none"> <li>• Degree of customization required</li> <li>• Effectiveness of vendor support and training</li> <li>• Ease of configuration / tool effectiveness</li> </ul>	<p>Look for a solution that meets most or all business requirements out of the box.</p> <p>Require proven administrative and end-user training.</p>
<b>IT support costs</b>	<ul style="list-style-type: none"> <li>• Training and rollout</li> <li>• End user incidents / trouble tickets based on usability, compatibility, network, and availability issues</li> </ul>	<p>Validate usability including training and help</p> <p>Check reference customer experience of incidents per thousand user-hours of collaboration</p> <p>Assure uptime across network infrastructure (in-house and/or service providers)</p>
<b>Telephony costs</b>	<ul style="list-style-type: none"> <li>• Cost for voice conference calls</li> </ul>	<p>Only applicable for solutions that don't integrate VoIP capability</p>
<b>Costs associated with maintaining worldwide, secure, highly available voice/data/multimedia network</b>	<ul style="list-style-type: none"> <li>• Global Bandwidth</li> <li>• NOC(s)</li> <li>• Local points of telephone access (toll and toll-free when applicable.)</li> <li>• Physical installations and associated physical security</li> <li>• Redundant hardware, power, and connectivity</li> </ul>	<p>Applicable to software solutions only</p>



*As real-time collaboration becomes increasingly business critical it is imperative that the solution IT offers is highly available.*

## High Availability

As enterprises evolve in their use of technology, the services that start as innovations become essential to business. From electric power, to reliable transportation, telephones, and more recently e-mail and web access, technologies that are embraced by business users become business critical, and users expect uptime.

As with TCO, the availability of real-time collaboration depends on a number of factors:

- **Server uptime.**

This is a function of software reliability, redundant and fault-tolerant deployments, and management.

For premise-deployed software, IT should apply at least the same level of availability architecture as for voice infrastructure, including redundant servers with automated failover and fault tolerant hardware deployments. For hosted solutions, closely examine the vendor's fault-tolerance and failover architecture.

- **Client uptime.**

The ability to keep users up-to-date without costly software distribution processes is a key requirement. As desktop environments evolve with new OS releases, new versions of productivity applications, and new default security settings, client software and configurations will change. Client software should be downloaded and updated on-demand.

- **Network uptime.**

This is the most difficult factor to manage for enterprises running their own real-time networks — operating a worldwide rich media network is a specialized skill. Since buyers of on-demand solutions are outsourcing the majority of network operations issues, they should look at vendor historical data, validate vendor claims with reference customers, and demand firm commitments for network uptime — generally at the four nines level.

## **Switching vs. Store-and-Forward Architecture**

*Most real-time collaboration solutions use a store-and-forward architecture, where content is streamed from a presenter's desktop to a server, stored, and then forwarded to each conference attendee. While this architecture is ideal for e-mail and other asynchronous data transfer, it poses serious challenges to real-time web conferencing.*

*A more suitable alternative is a switching architecture, in which content is immediately streamed from the presenter through a dynamically configured switching point and routed directly on to the attendees. Not surprisingly, this architecture is the one used by telephone networks, the original "real time collaboration platforms."*

*Switching architectures have a number of advantages over the more common store-and-forward method including:*

- **Performance.**

*By avoiding the latency caused by writing and later reading the content on a server, performance is much closer to real time.*

- **Availability.**

*Removing server-based operations offer fewer failure modes for switched networks—again, consider the reliability of telephony systems as compared to e-mail.*

- **Privacy and security.**

*With store-and-forward, content is stored on servers (either on-premise or vendor), even if temporarily. A switched network that does not store content provides higher privacy and security for sensitive or regulated content.*

## **Scalability and Performance**

### **Scalability.**

As conferencing and collaboration solutions are used today, large spikes in demand are typical. Especially for company meetings and announcements, training initiatives, sales team conferences, and marketing webinars, demand rises and falls.

This uneven demand challenges organizations hosting their own real-time collaboration solutions. Do software license agreements support periodic large-scale use without penalizing companies during the times when demand is more modest? Can rich media networks scale to periodic enterprise-wide use without requiring infrastructure modifications and if so, what is the cost of maintaining this network during non-peak periods?

Another scalability challenge IT organizations face is global deployment. Enterprises are increasingly global in focus—if not with their own employees, than with outsourcers, contract manufacturers, partners, prospects, and customers. Network operations, capacity, server management, and client deployment become more difficult as the focus moves from a single country to wider geographic regions or global rollouts.

### **Performance.**

Performance issues are at the top of user experience concerns. The user experience with system performance comprises:

- Start-up time (first use)
- Start-up time (after client or agent is loaded)
- Time to join a conference
- Interactivity—can the screen keep up with presentations?  
Shared workspaces? Demonstrations?

Special considerations for performance must be given to networks that are outside the IT-supported LAN/WAN. Customers, partners, and employees are increasingly connecting from home offices, hotels, airports, branch offices, overseas locations, and even coffee shops. Their quality of experience must be supported, which requires careful compression and data switching in the network. (See sidebar: "Switching vs. Store-and-Forward Architectures.")



*A comprehensive TCO analysis will include consideration of what it will cost for IT to support and manage the real-time collaboration solution.*

## **Supportability and Manageability**

Supportability and manageability are key factors underlying the analysis of TCO and availability. A system that is complex to support and manage will be costly to operate and prone to downtime. Specific aspects of supportability and manageability are:

### ***Deployability.***

IT organizations should establish requirements for the client or agent: how hard is it to deploy and upgrade? Requiring an additional application to be maintained on enterprise desktops has a ripple-through effect on the cost of new employee provisioning, system upgrades, and system support.

### ***Identity.***

Most IT organizations have implemented directory or identity management projects for trusted authentication with single user sign-on. Real-time collaboration must fit these initiatives.

### ***Integration.***

Similarly, most large enterprises have invested in customer relationship management (CRM) initiatives. Externally-facing real-time collaboration solutions must be able to be integrated with CRM systems to make it easier for customers to connect into the enterprise, and easier to track meetings and events that take place. Additionally, collaborative solutions should cooperate with charge-back and other enterprise infrastructure, reporting and analytics systems.

### ***Globalization.***

Global deployments demand support for international languages and user interface localization into Tier One languages such as English, Spanish, German, French, Japanese, Korean, and Chinese. Other globalization requirements include local and toll dial access in major industrialized countries and regional network access for performance.

### ***Vendor Support.***

IT's support must be backstopped by responsive vendor support offerings. Vendors should offer a convenient online and telephone-based incident submission, user-friendly self-service, 24 x 7 support, and aggressive SLAs for Priority One incidents.

### ***Rapid time-to-value.***

Deployments must be easy and flexible. Collaborative solutions should meet the requirements of business stakeholders with a minimum of customization, ideally through a suite of applications or services tailored to each department's specific requirements. Customizations for integration, billing / cost management, feature lockdown, or local area requirements should be possible with a minimum of effort.

*The ideal real-time collaboration solution will serve the broad needs of the organization without compatibility issues.*

## **Environment and Compatibility**

Selected solutions must conform to existing IT infrastructure standards. Moreover, with increasing need to collaborate outside the enterprise, ensuring compatibility with the maximum number of external configurations is of paramount importance.

Standards to consider include:

### **1. Platforms.**

Since collaboration is a many-to-many exercise including internal and external participants, a wide range of platforms must be supported. Major platforms, operating systems and web browsers should have the full collaboration capabilities.

### **2. Network connections.**

Today's distributed enterprise supports remote offices, home offices, branch locations, business partners, and a highly mobile workforce. This results in collaboration across a broad array of network capabilities unified only by their support of IP. Given the various latency, reliability, and bandwidth characteristics of network links in the distributed enterprise, IT must evaluate which network types should be supported.

### **3. Client lockdown issues.**

Many prudent IT organizations restrict end users' ability to introduce new software onto their desktop machines. It is critical that end users be able to join or host collaboration sessions without installing software or having administrator rights.



## **Collaborative Functionality**

Finally, TCO, maintainability, and other IT criteria are irrelevant if the collaboration solution doesn't meet the business needs. This is a challenge because distinct business requirements translate into specialized needs for real-time collaboration for training, support, marketing, and other key stakeholders.

Key real-time collaborative functionality includes:

### ***Support for specific business processes.***

While general purpose collaboration tools are adequate for many types of meetings, specific business functions such as selling, training, marketing and online support have unique requirements. Consider the face-to-face meeting analogy: companies use boardrooms for sales meetings, training rooms for product training, auditoriums for large events and so on. Look for a vendor's ability to extend web meeting capabilities beyond a one-size-fits-all solution. More than user interface differences, these departmental solutions should fit seamlessly into an organization's existing workflow and operational procedures – and integrate easily with existing enterprise applications such as CRM, ERP, SFA, LMS, and communication portals.

### ***Internal and external use.***

Software must be seamless and convenient for collaboration across the intranet, but secure and auditable for collaboration with prospects, customers, and partners outside the firewall.

### ***Integrated support for voice, data, and audio.***

Studies such as RAND's Challenges of Virtual Collaboration cite the benefit of integrated voice, video and data to simulate face-to-face interaction. The ideal collaboration offering should include all three modes of virtual collaboration.

### ***Recording and replaying.***

Complete sessions should be easily recordable for later reference — for example, to save a demo for new customers or to share a technical support problem on a customer's site for analysis by development engineering. Session recording is also critical for adherence with Sarbanes-Oxley and other compliance frameworks.

Because different business uses have differing needs, the best solution is to have specific applications or solutions for various groups in the company. This provides the best of both worlds: specialized functionality that provides power and usability for specific groups and a common platform that provides security, manageability, and low TCO for IT.

*Security and compliance issues must be addressed before selecting a real-time collaboration solution.*

*Unlike any other seal that claims to protect consumer or business privacy, WebTrust is the only seal administered by a third-party. Vendors with the WebTrust seal must undergo an annual recertification process to maintain a current seal.*

For more information on WebTrust please visit: <http://www.webtrust.net/>



*SAS-70 is the authoritative guidance that allows a vendor to disclose its control activities and processes in a uniform reporting format.*

For more information on SAS 70 please visit: <http://www.sas70.com/>



## Security and Compliance

After TCO, most IT executives list security and compliance as their number one concern. Following the indictment of HealthSouth executives on Sarbanes-Oxley violations enabled in part by lax IT controls, security and compliance considerations are a key component of all vendor decisions. Specific considerations include:

### **Architecture.**

Are systems connected point to point, or is the connection intermediated by a central trusted server receiving paired inbound requests? Point-to-point connections are more easily spoofed and hijacked. Are there incoming requests to clients? These provide a ready-made back door for unscrupulous users. Are servers managed in a physically secure environment? Is the server architecture switching or store-and-forward? And, most significantly, do solutions require a hole in the firewall when extended outside the enterprise? Such holes present significant risks for enterprises and the organizations with which they communicate.

### **Logging and auditing.**

A clear record of actions is especially important when users are granting access to support professionals to take action on their machine. The system should maintain a complete log of files, commands, and scripts, as well as a session recording of all actions taken through the graphical user interface.

### **Encryption and client authentication.**

Central servers must be sure they know the source of all incoming connection requests—this requires strong client authentication. And data must be protected throughout the entire transit from desktop to server and server to desktop. This requires strong encryption such as the new Federal Information Processing Standard AES and the industry standard for web encryption, SSL.

### **Third-party certifications.**

Because security assessments are so difficult to make, IT organizations should look to one or more certifying bodies to do a detailed technical and process-level assessment of candidate solutions. Leading certifications are SAS-70 Type II (see [www.SAS70.com](http://www.SAS70.com)) and WebTrust (see [www.webtrust.net](http://www.webtrust.net)).



## **Vendor Requirements**

At the end of the day, IT organizations standardizing on a web conferencing and collaboration solution are investing in a partnership with a technology provider—a partnership that is especially strategic when the choice is an on-demand provider of collaboration services. This means that vendor stability, commitment, and willingness to partner with its customers are paramount issues.

The three fundamental questions to ask are:

### ***Viability.***

Is the vendor financially healthy? Is its collaboration business profitable? These questions are much easier to answer for public companies, especially those that are strategically focused on collaboration.

### ***Vision and Focus.***

Does the company have a core focus on the collaboration space, or is collaboration a “flavor of the month” that has been acquired to somehow blend in to other core business areas? Is the vendor’s vision of real-time collaboration compatible with yours?

### ***References.***

Are there comparable companies in the same industry using this vendor that are willing to share their experiences? How would they score the vendor against these key selection criteria?

Collaboration is an increasingly strategic element of most enterprises. Make sure your vendor shares your commitment to success.

## Conclusions

Like the telephone and e-mail, real-time collaboration is rapidly becoming a mission-critical utility for businesses. This means that uptime, security, total cost of ownership, and other utility considerations need to be managed by IT organizations.

Because most collaboration purchases to date have been made by individual business units, IT organizations have a considerable opportunity to drive business value by standardizing on a single solution that meets the needs of all business stakeholders. Standardized solutions are better utilized, more cost-effective, more secure, and easier to deploy and support.

This paper suggests a number of requirements that will be relevant to most IT organizations selecting a standardized solution. By reviewing this list against specific enterprise needs, and adding industry- or business-specific requirements, IT decision makers will be able to come to a conclusion that serves their business and saves money at the same time.



### **About WebEx**

*WebEx provides web-based applications that help businesses of all sizes collaborate in real time on the web. More than 11,000 customers use WebEx applications for marketing, sales, training, support, IT, project management, and internal collaboration.*

*WebEx delivers its suite of real-time collaboration applications over the global WebEx MediaTone Network designed specifically for secure, manageable, cost-effective collaboration as discussed in this white paper.*

*For a more detailed treatment of security requirements, and of WebEx's architectural approach to meeting them, please see our white paper entitled "The WebEx Security Overview" at <http://www.webex.com/pdf/Security.pdf>.*

For more information on WebEx and its on-demand applications, contact us at [www.webex.com](http://www.webex.com), **877.509.3239** or **+1.408.435.7000**.

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