



Advisory Report

# Google Wave, Upending the Enterprise



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## ■ Summary

We are rapidly approaching an inflection point within the collaboration and conferencing marketplace where the roles played by PCs and the Web will flip flop. Already, enterprise data, custom applications and line-of-business applications are increasingly leaving the desktop, taking up residence on the Web as software-as-a-service (SaaS) offerings. The reasoning is apparent and compelling. IT departments can future proof investments, as updates “just happen” without substantial downtime. They can greatly reduce desktop management and support costs. And they can at last operate as a flexible, service-oriented entity, driving business rather than merely supporting legacy equipment investments.

The drivers behind this march to the cloud include the meteoric rise of social networking, the accompanying blurring of personal and business user personas, the empowerment of mobile devices, the allure of Web-centric Netbook computers, and the emergence of Web-based productivity collaboration products. Of these solutions, Google’s forthcoming collaborative suite and development framework, Google Wave, appears to have single-handedly accelerated this role reversal, creating along the way numerous competitive opportunities and challenges for vendors working within the collaboration and conferencing marketplace.

Just how much of a game changer Google Wave becomes remains to be seen, however. The product is a long way away from technological maturity. Google has historically shown itself to be somewhat fickle when it comes to maintaining unusual (read risky) software over the long haul. The very nature of Google Wave requires a huge leap in user understanding, as it breaks down assumptions about the nature of real-time and asynchronous communications. And the business model for Google Wave itself is not likely to be formalized until later this year. All of these unknowns should encourage vendors to approach Google Wave cautiously. In this way, Google Wave represents both a sizable opportunity and a considerable risk for collaboration and conferencing vendors.

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It has been theorized that every so often (every few hundred million years) the earth's magnetic orientation suddenly flips, upending the magnetic dipole, turning north into south and south into north. As the theory goes, internal or external factors weaken the molten lead dynamo at the earth's core to the point where this north/south orientation becomes chaotic, forcing a sudden and global realignment of the earth's magnetic field. The same sort of reversal is now underway within IT departments as the established dictates surrounding what roles the Web and the PC are to play are weakening. The rise of social networking sites, the loss of distinction between personal and work personas, the rise of Web-centric mobile devices (PDAs and Netbooks) and the increasing popularity of SaaS-based collaboration suites (Zoho Office, Zoho Office, IBM LotusLive Engage and Microsoft Business Productivity Online Suite) have accelerated the realignment of PC and Web, placing greater emphasis on what happens online than what's running on the desktop.

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With Google's recent introduction of Google Wave, this progressive role reversal appears to have leapt into a much higher gear. Though only available as a developer preview and not expected to reach the market until late in 2009 or early 2010, Google Wave has already altered the product roadmaps of many companies operating within the collaboration and conferencing space. Likewise its immediate and fervent adoption by the consumer marketplace has been well documented, wherein it has been heralded as a Twitter-killer, a replacement for Facebook and the end of email as we know it.

Google Wave is a difficult product to categorize. Like the mythological griffin (a beast with the head and wings of an eagle and the body of a lion), Google Wave is at once an event streaming service like those employed by Twitter and Facebook as well as a group document editor (otherwise known as a wiki). A bit more granular description would classify Google Wave as employing wikis, email, instant messaging, blogs and an enterprise content management system. This collection of Web 2.0 tools sits atop a development framework and API designed to encourage third-party ISVs to both extend and embed Google Wave functionality. In terms of its intended purpose, Google Wave can be seen as the eventual replacement for Google Gmail, as at a very basic level it works as a real-time email system. However, unlike traditional email, which supports an asynchronous exchange between one or more individuals over a closed system, Google Wave allows users to create real-time, threaded conversations. Each conversation, also called a Wave, can spawn additional, nested Waves, which are called Wavelets. Within each Wavelet are basic units of conversation (akin to a Tweet on Twitter), called Blips. Each of these (Wave, Wavelet and Blip) maintain a unique ID, which marks the location of each element within the broader system.

What is truly unique about Google Wave isn't this nested architecture or its real-time capability, but rather its support for both humans and machines as equal participants within a Wave, using the Wave API and associated development toolkit. Given the same rights as people, automated services, called Extensions, can contribute to a given conversation. For example, a Wavelet discussing the Tour de France might include a cloud-based extension (called a Robot) that incorporates current race leaders within the Wavelet in real-time. Conversely, a Robot could kick off an external action based upon activities within the Wavelet, for example gathering race reports that have been submitted as a part of the Wave and pushing those into an external content management system. There are also local Extensions (called Gadgets) that operate solely within a given Wave/Wavelet, extending functions available to its participants. A Gadget, for example, might display race leaders

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within a Google Map that sits adjacent to the Wave/Wavelet. For the enterprise market, this human/machine interaction makes Google Wave perhaps the perfect conduit between information workers and the line-of-business systems with which they must interact. For example, an enterprise could tie a Google Wave to a CRM package in such a way a customer inquiry within a Wave can draw upon both the history of that user and the context of the user's inquiry. Internally, Google Wave can break down the walls that exist between line-of-business applications (e.g., CRM, ERP, BI, HRM, etc.), replacing human-only email communications about those systems and their data with a human-oriented communications fabric that directly interfaces with these systems.

There are a number of other opportunities inherent within Google Wave's architecture that will recommend it for enterprise use. For example, the platform has access to numerous Google services such as the natural language processing based upon Google's search index, which is used in the vendor's spell checking capability. This capability will allow Google Wave to literally front end customer-facing support systems like contact center and help desk solutions. Also, it is likely that Google will continue to expand Google Wave by incorporating additional Google Apps (e.g., Gmail, Google Voice, Picasa, Google Talk, etc.) into the product's API and development toolkit. With Google Voice and Google Wave in alignment, for example, enterprise customers can begin to construct unified communications (UC) solutions that are truly able to unify voice and text collaboration in near real-time. And because Google Wave appends an ID to each Blip, developers can write Robots capable of extracting temporal context. Using this feature, Google Wave (the product) allows users to "replay" a given Wave or Wavelet in order to ascertain the exact order of information. This same capability makes Google Wave governance-ready, as filtering, e-discovery and compliance applications can easily plug into this temporary information.

If Google were satisfied to release Google Wave this winter as another Google Apps offering, its impact would be akin to the introduction of Google Maps or Gmail. Google would simply increase its competitive stance relative to collaboration platform players such as IBM, Microsoft, Jive, Yahoo!, Zoho and Novell. However, because Google has declared its intent to release Google Wave as an open source (OS) product and platform, the company stands to dramatically alter the collaboration landscape, creating a Google Wave ecosystem of vendors that build solutions capable of connecting with and extending Google Wave as a Google product. Conversely, any vendor (even rivals of Google) could build solutions that are based upon Google Wave or extend current products to incorporate Google Wave functionality. Vendors will even be able to establish their own Google Wave-based software-as-a-service (SaaS) solutions that would in essence compete with Google's own Wave service. Google's intent to encourage this sort of vendor ecosystem is supported by the inclusion of a federation protocol within the Google Wave API, which employs the extensible messaging and presence protocol (XMPP) to allow near real-time communications and updates between multiple Wave servers.

Whether or not Google's actual business plan for Google Wave actually supports this type multi-vendor Wave ecosystem remains to be seen, however. Until Google actually submits Google Wave to the OS community and clearly defines the relationship between Google's implementation of Wave and Wave as an OS product, the collaboration and conferencing vendor community should approach this opportunity with caution. For example, Google Wave may require supportive services from Google itself. As with the Google maps API, for example, the Wave API ties Wave implementations back into the Google network for supportive services such as spell checking (mentioned above). This may extend to more mission-critical services, tethering enterprise and ISV-built Waves to Google's infrastructure. Google Wave's immaturity should also force a cautious stance both in terms

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of technological readiness. For example, Robots are instantiated within the Google Wave API with the same rights and privileges as actual, human users, focusing them on the user interface. This constrains and they manner in which these robots can interact with external applications. Also, given Google's hostile stance toward Microsoft, as evidenced in its recent introduction of a Linux-based alternative to the Windows operating system, it is likely that Google Wave's browser-dependence may turn out to play a disruptive role in the product's evolution. Already, Google Wave does not support Internet Explorer 6, as it requires complete HTML 5 support. Lastly, Google Wave introduces a collaboration methodology that is extremely foreign to its target users. It will take some time for users to adapt to real-time email communications that exist outside of messaging and presence tools. It will also take time for cloud-based collaboration services to reach a level of adoption broad enough to necessitate the inclusion of Google Wave directly within enterprise collaboration roadmaps. These concerns aside, if Google carries out its stated intentions with Google Wave, releasing the site and development platform as an open source solution, vendors in the collaboration and conferencing space have at their disposal a number of options. They can:

- **Embed** Waves within existing collaboration applications, allowing external, public Waves to exist inside applications like Oracle Beehive or Lotus Notes.
- **Enable** existing collaboration applications to interact with external Waves. This let allow enterprise applications like the Yahoo! Zimbra to create a bi-directional feed to and from external Waves.
- **Extend** existing collaborative applications to make use of Wave-like capabilities. Using Wave as a development platform, vendors can employ Robots and Gadgets to add select Wave functionality such as real-time, contextual event streaming.
- **Initiate** solutions surrounding enterprise-based Google Wave implementations. Vendors can build management, security, access control, governance and monitoring software around internal Google Wave deployments, as Google Wave lacks such tools.
- **Create** competitive functionality outside of Google Wave. Vendors can eschew any sort of federation or integration and instead opt to create Wave-like features within existing collaboration solutions.
- **Wait** and see how Google Wave enters the market before taking action.

Regardless of the path chosen, vendors cannot afford to ignore Google Wave. Given Google's substantial pull and its appeal within the consumer marketplace, even if it fails to release Google Wave, the very existence of this next-generation email platform will significantly alter the market landscape well into the future. At a minimum, Wave will accelerate the Webification of the enterprise. And if Google has its way, Wave will force a tipping point wherein enterprise customers build applications on a Web-oriented operating system like Google Chrome for Web-based collaboration platforms like Google Wave.

**Recommended Actions****Recommended Vendor Actions**

- All collaboration software vendors (in particular Oracle, Microsoft, Novell and Cisco) should undertake one of the courses of action listed above. Given the level of media, user and developer attention garnered by Google Wave over the past month, it is likely that even if Google chooses to simply release Wave as a Google App (only available from Google), the solution will command enough user attention to warrant at least federating or embedding Wave content.

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- Vendors with messaging solutions (such as Microsoft, Yahoo!, Zoho, Novell and IBM) should not simply view Google Wave as competing directly with their own products. Rather, these vendors should initially consider either embedding Google Wave within or enabling their email and calendaring solutions to federate information with Google Wave. Only when Google Wave has matured within the market, should these vendors consider taking the next step beyond federation, extending their solutions through the addition of Wave functionality itself.
- Vendors marketing collaboration platforms as SaaS or managed hosting services (including Cisco, IBM, Jive and Oracle) should consider offering Google Wave services as a part of their in-cloud portfolio (for direct and channel-led sales). Because Google has not equipped Wave with enterprise-necessary features (e.g., security, availability, governance, access control, performance, etc.), these vendors will find an immediate opportunity to field hosted, enterprise-class Waves that are tied into their existing collaboration tools. These vendors should note, however, that if Google reverses its current focus on the consumer market, taking aim instead at the enterprise space, Google will quickly become a rival.
- All vendors within the collaboration and conferencing space should immediately investigate the Google API and its associated development toolkit, engaging with Google directly. To that end, Google has already held a “Hackathon Day” for interested developers, and it plans on holding a “Google Wave Federation Day” in Googleplex in July for vendors wishing to establish their own Google Wave hosting services.
- While there are a number of immediate opportunities for collaboration and conferencing relative to Google Wave, vendors should take into consideration Google’s historic lack of interest in directly reaching out to enterprise customers. As with Gmail, Google Wave, as a Google product, will exist as a consumer-oriented solution for some time. This will give vendors some initial leeway in discerning how to respond without concern over Google moving into direct competition immediately. That said, if Google Wave emerges as a fully open source product, third-party ISVs are likely to initiate competitive actions immediately.
- Vendors with line-of-business applications and UC solutions should immediately seek to employ Google Wave’s messaging and federation protocols within all applications that combine human and machine workflows (e.g., ECM, BPM and ERP). Similarly, these vendors should embrace the XMPP standard as a means of passing state and information between Waves, line-of-business applications and back end systems (e.g., database, PBXes, middleware, management systems, etc.).

**Recommended User Actions**

- Enterprise developers interested in Google Wave should seek to participate in Google’s developer program or at a minimum become acquainted with the company’s published API documentation. Because Wave applications can be built using Google’s well-established Google Web Toolkit (GWT), developers should get a head start, building applications for available Google applications running on the Google AppEngine platform. Developers should also thoroughly understand both XMPP and HTML 5.
- Enterprise customers with existing investments in collaboration software, particularly messaging, calendaring and presence solutions, should request that their vendors provide them with a statement of direction concerning the integration with or use of Google Wave. Vendors should be able to articulate a rough game plan for federating with or accessing public Google Wave implementations as well.