LiteScape

OnCast™

White Paper

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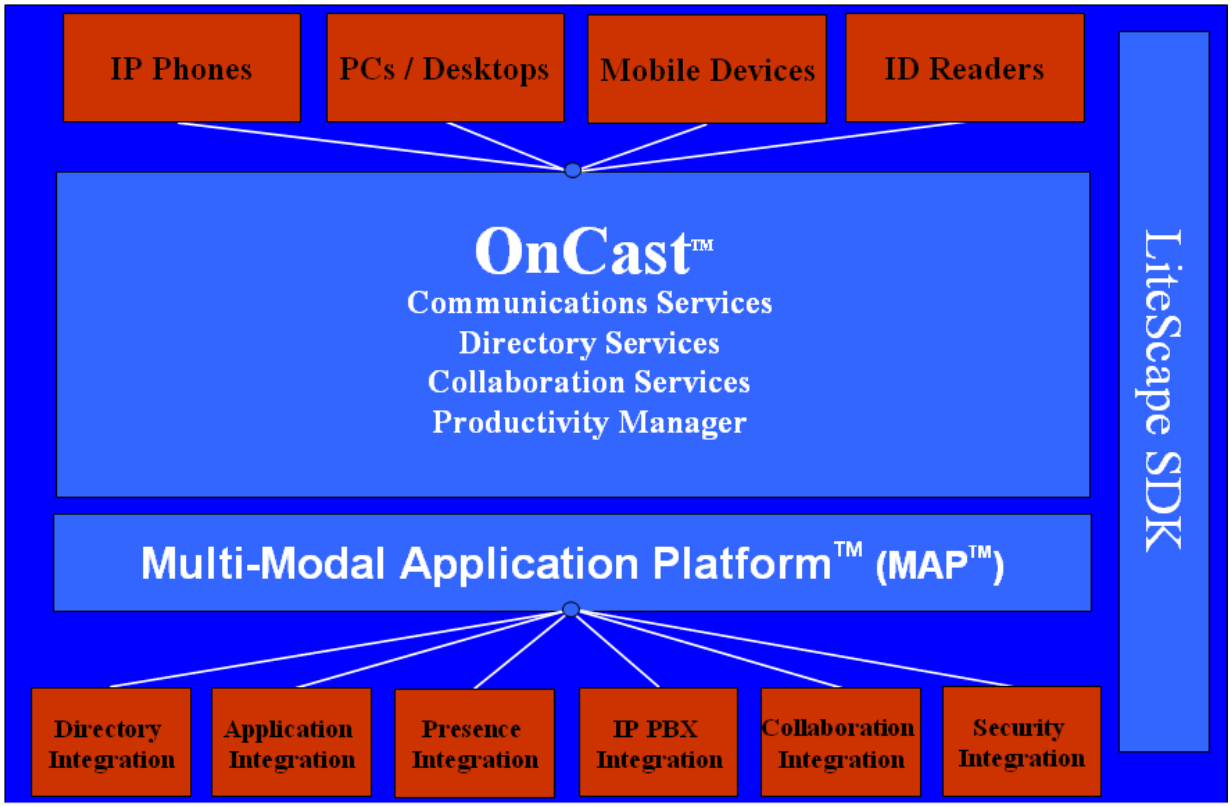
Abstract

LiteScape OnCast™ makes the future of unified communications a reality today, allowing organizations to harness the power of complete communications—voice, conferencing, broadcasting, collaboration—across the applications and Cisco communications devices they use on a daily basis. OnCast bridges the gap between corporate data, collaboration tools, desktop PCs and Cisco IP phones to create a seamless communications experience. The power of OnCast lies in its ability to integrate organizations' Cisco Unified Communications Manager with a range of critical business applications including Microsoft Active Directory, Microsoft Outlook/Exchange, IBM Lotus Notes, Salesforce.com, and WebEx.

Tearing down communications barriers, OnCast effectively eliminates the divide between Cisco IP phones and PCs, allowing users to move seamlessly between these distinct devices. By integrating the tasks users associate with their telephones with the functions they perform on their computers, OnCast allows users to collaborate more effectively than ever, increasing productivity and optimizing business processes.

This white paper addresses LiteScape's flagship product—OnCast—and the benefits it brings to the Unified Communications marketplace; its different application services and user interfaces which, when combined, reduce the complications of present-day communications into a single, integrated solution across multiple modes of communication; LiteScape's Multi-Modal Application Platform (MAP) upon which OnCast and its totality of services run; an overview of its Java and .NET implementation; and the technical aspects of its phone integration with WebEx.



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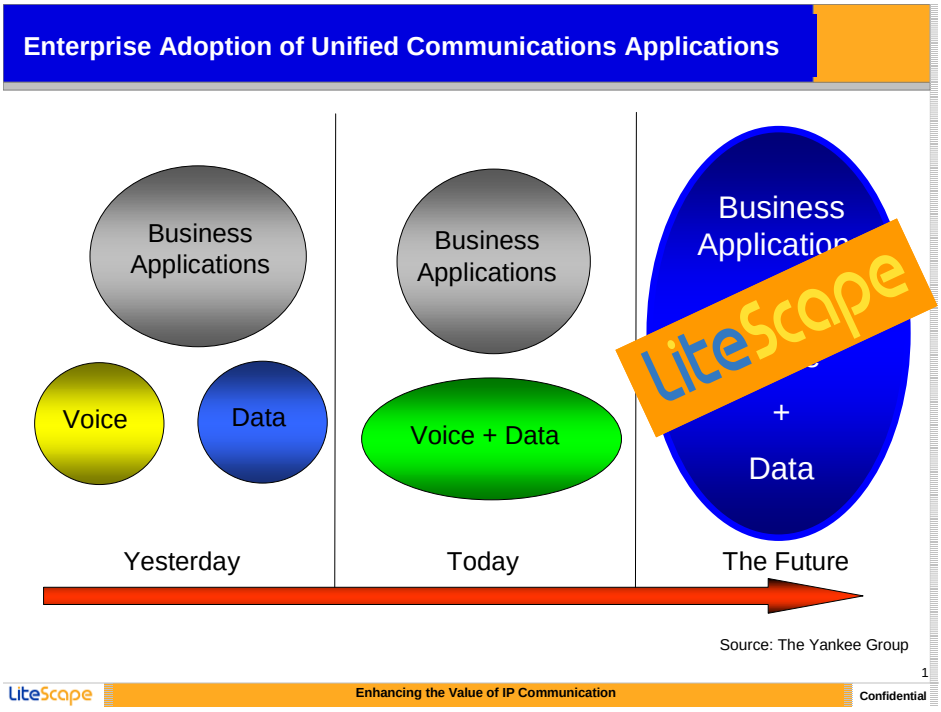
The Problem

Enterprises today maintain heterogeneous technology environments, leveraging a mix of different business applications, collaboration tools, and communications devices from multiple vendors to perform their jobs. As the voice and data networks of enterprises have gradually converged, organizations increasingly are focused on integrating their real-time communications infrastructure with the business applications and information its users depend on to do business. Through this integration, organizations will be able to fully leverage their investments in technology and optimize traditional business processes to increase productivity, generate new sales, improve customer service, and establish competitive advantage.

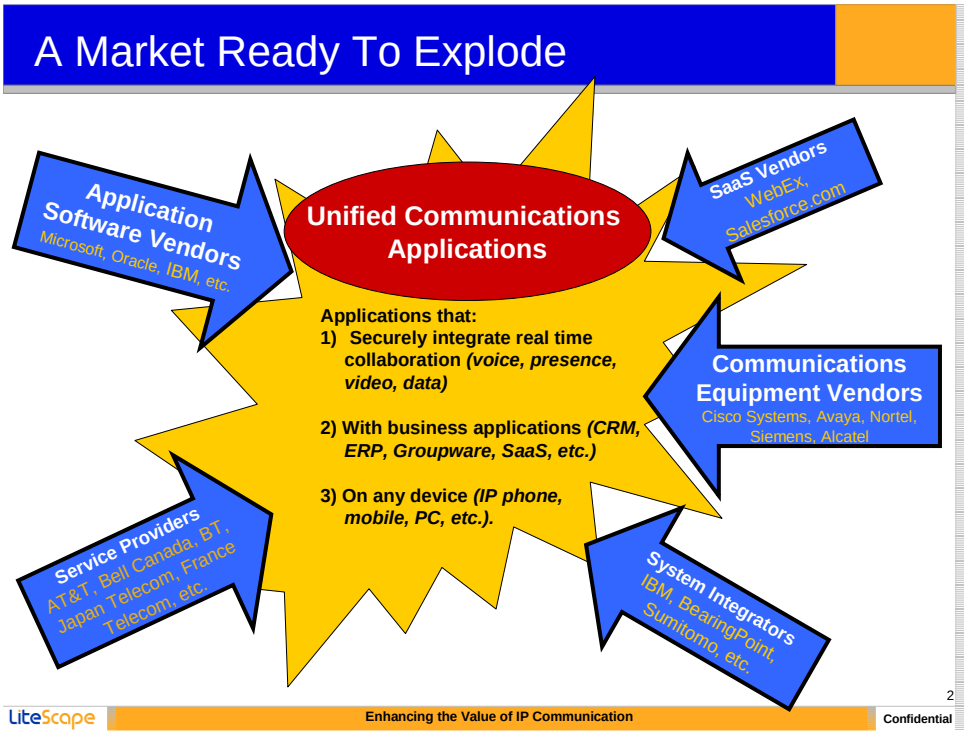


The promise of unified communications has been with the industry for some time. To date, the focus has been primarily on messaging and providing a single repository for all types of messages including voicemail, email, and faxes. Fortunately, this narrow view has recently changed and expanded to include the integration of all real time communications (voice, video, collaboration, IM) into the core application-infrastructure of an organization.

While this transformation has gradually taken place, it has also become clear that enterprises do not buy unified communications applications simply for “unifying” their technology infrastructure. Instead, they buy these applications to address specific business needs: that is, for example, to increase the productivity of an inside sales force or to improve customer service within a retail store or even to enhance the ability of remote employees to collaborate in real time.

As a result of this expanded view of unified communications and the way in which these solutions are ultimately purchased, the opportunity to deliver these types of applications has attracted the interest of the full range of technology vendors. Traditional communications equipment vendors with telephony expertise like Cisco and Avaya view the integration of any real-time communications technology with business applications as their business to lose. Application software vendors, meanwhile, contend that these real-time communications applications are just that--applications that should be provided by only vendors with true enterprise application expertise. At the same time, SaaS vendors and service providers

are viewing the addition of real-time communications applications to their service offerings as a crucial differentiator that can dramatically increase demand and simplify the use of their services. Finally, systems integrators both large and small see the opportunity to provide services around integrating an organization's business applications infrastructure (e.g. CRM, ERP, etc.) with its real time communications solutions. Overall, the confluence of interest by these various technology providers is driving awareness and demand for unified communications applications like never before.



OnCast Services

OnCast Communications Services

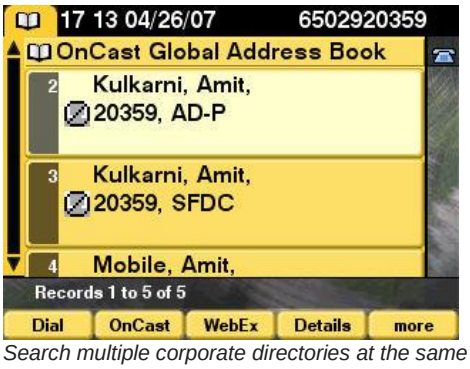
OnCast Communications Services provides connectivity to a variety of IP-PBXs including Cisco Unified Communications Manager to greatly simplify and enhance how users leverage the capabilities inherent in these systems. Through the push of a button on a Cisco IP phone or the click of a mouse on a PC, OnCast Communication Services enables users to instantly Dial, Conference or Broadcast with individuals or groups.

OnCast Directory Services

OnCast Directory Services provides access to various types of corporate information systems including directory servers, email servers and CRM systems from one single interface on a Cisco IP phone or a desktop client.

OnCast Directory provides simultaneous access to multiple corporate directories including:

- Microsoft Active Directory
- LDAP and Open LDAP compliant directories
- Microsoft Exchange and Outlook(GAL and PAB)
- IBM Lotus Notes
- Salesforce.com
- SQL based directory repositories



Search multiple corporate directories at the same time from one interface.

OnCast Collaboration Services
OnCast Collaboration Services eliminate the complexities of online collaboration and allow users to communicate and share information more efficiently than ever before.

Through an exclusive partnership with WebEx, OnCast tightly integrates WebEx with Cisco Unified Communications Manager and Cisco IP phones. OnCast allows users to seamlessly move between the interface (*Microsoft Outlook, Lotus Notes, Internet Explorer or OnCast Client*) and device of their choice (*Cisco IP phone or PC*) to schedule, launch and join WebEx collaboration sessions with one touch—making WebEx collaboration simpler and easier to use than ever before.

With the press one button on a Cisco IP phone a user can launch or join a WebEx session.

OnCast Collaboration Services also integrates 3rd party audio conferencing systems like Cisco Unified MeetingPlace with WebEx to allow enterprises to easily use multiple different collaboration tools simultaneously.

OnCast Productivity Manager
OnCast Productivity Manager coordinates real-time events on Cisco IP phones with applications on PCs. OnCast Productivity Manager enables events on a Cisco IP phone, such as an inbound call, to automatically trigger an intelligent application on a PC. Productivity Manager allows organizations to transform traditional business processes by integrating Cisco IP telephony directly with their specific applications environments. Capabilities include:

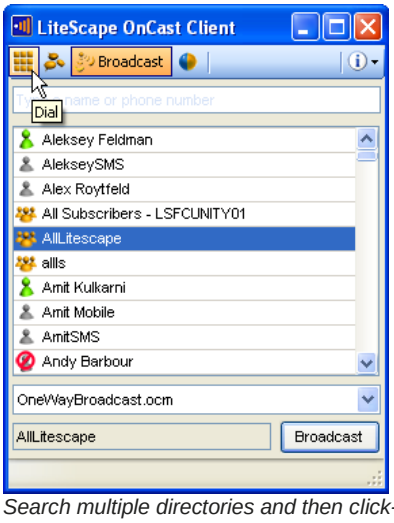
- Remote call-control
- Unified device presence status that integrates with standard IM clients
- Configurable screen-pops that can automatically trigger desktop applications based on any inbound or outbound call event

OnCast User Interfaces
OnCast Phone

LiteScape allows users to access all of the features and capabilities in OnCast Communications Services, OnCast Directory, OnCast WebEx, and OnCast Productivity Manager from Cisco's 7900 series family of IP phones and Cisco IP Communicator.

OnCast Client
OnCast Client is an Open Source desktop client that connects users' desktops with their Cisco IP phone. Through OnCast Client, users can locate a contact, click on the appropriate number, and then have their Cisco IP phone dial that number, invite the user to a WebEx session, or send a rich media broadcast. OnCast Client also enables this functionality directly from Microsoft Outlook, Lotus Notes or any Internet Explorer based application.

Through OnCast Client users can access all of the features and capabilities in OnCast Communications Services, OnCast Directory Services, OnCast Collaboration Services, and OnCast Productivity Manager. As an Open Source application, all this functionality can be customized and embedded directly into an organization's specific applications environment.



Search multiple directories and then click-to-dial from the OnCast Client using a Cisco IP phone.

OnCast Composer
OnCast Composer allows users to quickly compose and send multimedia broadcasts from a Windows or web-based client. From OnCast Composer, users can create and send live voice, pre-recorded audio, text, text-to-speech, and image-based broadcast messages directly to Cisco IP phones. These broadcasts can be saved for use again in the future from any OnCast interface. They may also be configured as speed dials or shortcuts for one-touch access. In addition, content from advanced sources such as surveys, RSS feeds, stock tickers, or customized meeting invitations can also be sent.

MAP Product Design[1]

OnCast and its totality of services are built upon LiteScape's Multi-Modal Application Platform (MAP). MAP provides a rich set of flexible business rules and configurable policies, not to mention strong security, authentication and access control, all of which are managed through real-time interactive multi-modal sessions. These characteristics make MAP a uniquely effective programming environment, allowing enterprises to leverage investment in their data infrastructures and to enhance common business processes by applying efficient scalable and secure solutions throughout their organization.

MAP supports a range of inputs and outputs such as:

[1] Parts of this section are adapted from "Casestudy: IP Telephony Integration," *InfoQ.com,* Scott Delap, ©2006

- Outlook/Exchange
- Outsourced Collaboration (WebEx, Live Meeting, etc.)
- CRM Solutions (ex. Salesforce.com, MS-CRM)
- Directory Services (LDAP / Active Directory)
- Presence Servers (MS-LCS, AOL)
- Communication Infrastructure (IP-PBX's, MS-LCS, Desktop Phones)

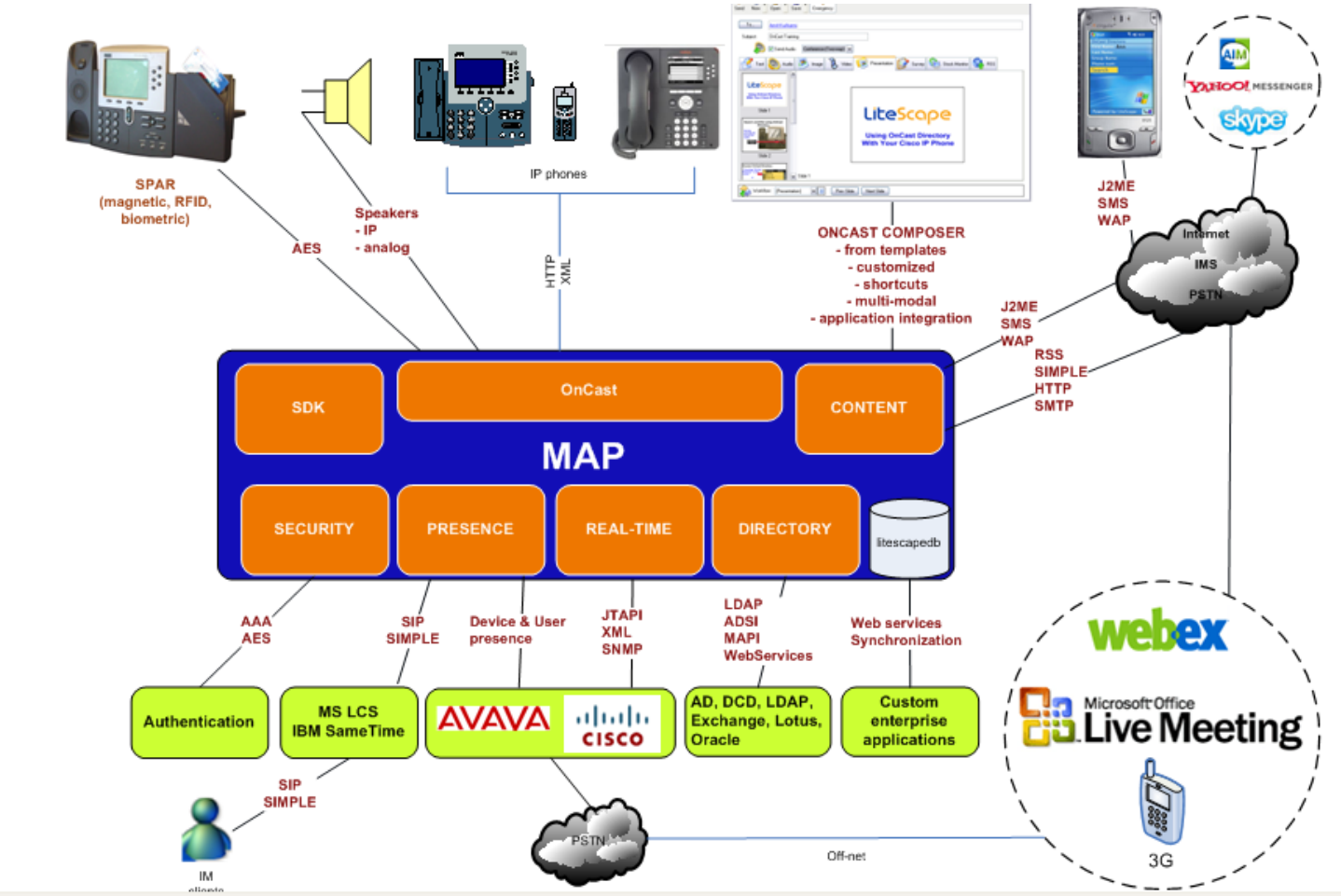


Figure 1: LiteScape MAP Architecture

Users can access these services through diverse interfaces and protocols, including desktop PCs, IP phones, and IP mobile devices. In essence, MAP enables IP phones to become multimedia endpoints that directly integrate with and complement all that a user does on his or her PC. The phone becomes an extended technological component that is often better suited than the computer to simplify and automate communication tasks such as: click-to-conference, user presence, and access to corporate and personal directory services.

The process of extending an application to IP telephones is far from simple, for the user-interface cannot simply be ported. Considerations must be made to provide a user interface that works efficiently with the input and screen specifications of the phone. That is to say, rather than simply “porting” the application to the phone, MAP extends the "presence" of the application or the data to IP phones. Once this process has been completed, however, logging into an online conference is reduced to pushing a "Join Conference" button on the phone to simultaneously join both the audio conference (IP phone) and the Web conference (PC) portions of the collaboration session.

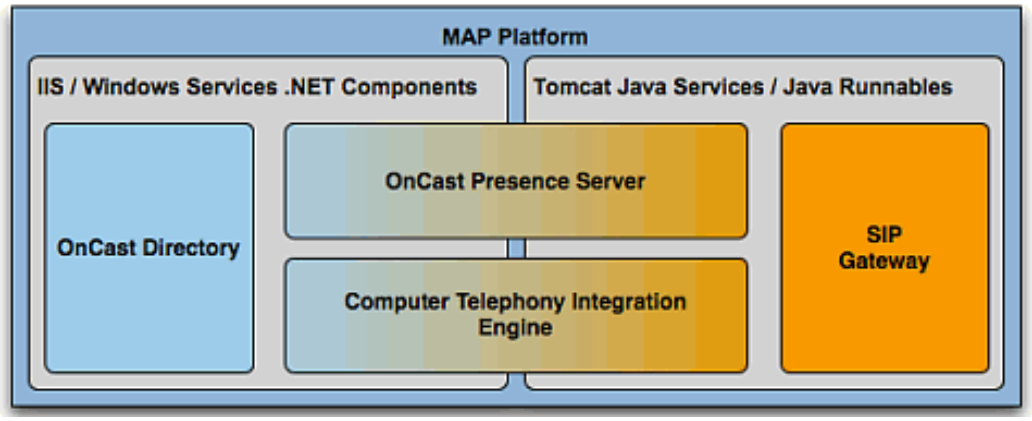


Figure 2: The Components of the MAP Server

Figure 2 shows the moving parts of the MAP server. IIS and Windows services--written in .NET--provide functions such as the OnCast Directory module, while Tomcat services and Java runnables enable functionality such as the SIP Gateway. Finally, some modules cross the Java and .NET runtimes such as the OnCast Presence and Computer Telephony Integration (CTI) modules. Aside from platform architecture, various technical protocols come together to provide a unified-communications experience for users as illustrated in Figure 1.

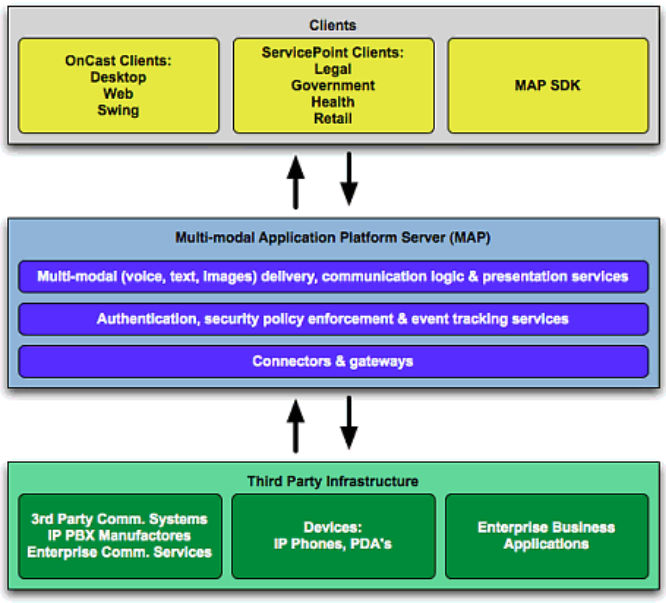


Figure 3: An Overview of the LiteScape Architecture

As MAP has evolved, so has the technology behind it. MAP began as a Java-based solution, though quickly leveraged .NET as part of its infrastructure in order to integrate with Microsoft Unified Communications. MAP also supports Windows operating systems with IIS and products such as Sun's Java Media Framework with Java-based integration.

For Java development, MAP utilizes IntelliJ IDE; a copy of Apache Tomcat is installed on a different port to run any necessary Java components. The Java portion of the server makes extensive use of API's such as Apache Axis to provide Web services support. For .NET development, MAP utilizes Visual Studio.NET. The LiteScape server installs on top of IIS on Windows operating systems and includes a number of Windows services to support integrations written in .NET. On the client side of the equation, the .Net-based OnCast Client provides desktop access on Windows XP and 2003. For enterprises needing Linux support, a Java Swing Web Start client is provided.

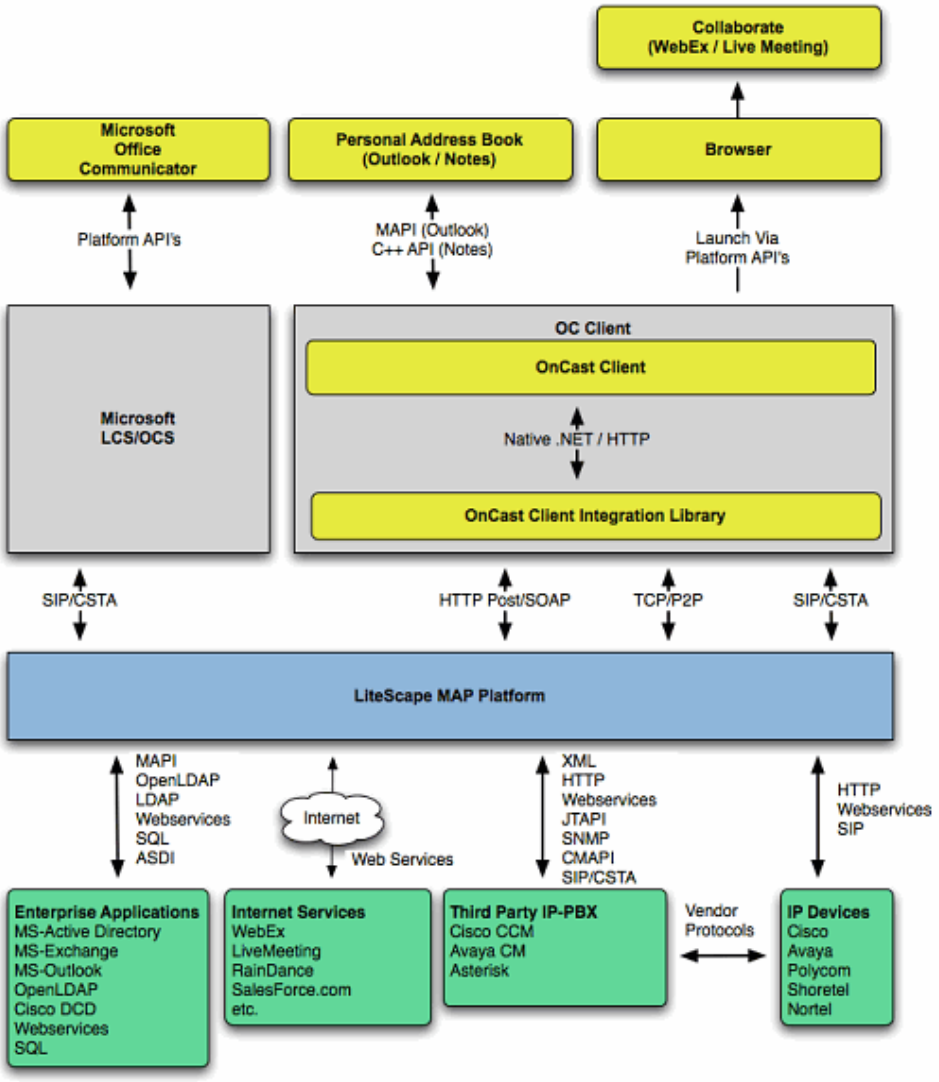


Figure 4: An Overview of the Communications Protocols Used

MAP provides clients with access to third-party elements such as directory services like Microsoft Active Directory and Open LDAP. MAP may also initiate functions on IP phone networks running on third party IP-PBX's such as Cisco CallManager, Avaya Communication Manager, or Asterisk. Protocol/transport technologies such as XML, HTTP, Java Telephone API, and SNMP may be used for IP-PBX communication based on back-end systems.

MAP also supports WebEx and LiveMeeting integration. Many people find the process of starting or joining an online conference frustrating due to the need for various URLs, dial-in numbers, and access codes. MAP automates this entire process so it can not only be initiated from the phone, but also integrate with WebEx/Live Meeting on the user's desktop.

After a user has been invited to a WebEx/Live Meeting session, he or she can manually add the invitee to his or her calendar. Before the meeting is scheduled to start, MAP--using IP Phone protocols—can send an OnCast Multimedia message (OCM) to the user's phone announcing the upcoming WebEx/Live Meeting session. The OCM structure includes support for multi-modal content such as text, audio, image, voice or composite content handlers for collaboration, RSS feeds, stock quotes, multiple choice surveys, MS-Power-Point presentations, Adobe PDF files, and more. LiteScape OCM contains an XML- based 'payload' document that references the necessary attributes, properties, and multi-modal event processing requirements that are to be carried out. The user then can select to join the conference call from his or her phone, and at this point, MAP receives a request to start a WebEx/Live Meeting session. MAP will then notify the IP PBX to initiate the call portion of the WebEx/Live Meeting conference and communicate with a user's desktop client, automatically launching a WebEx session on the user's desktop and logging them into the conference session. This sequence is shown in figure 4:

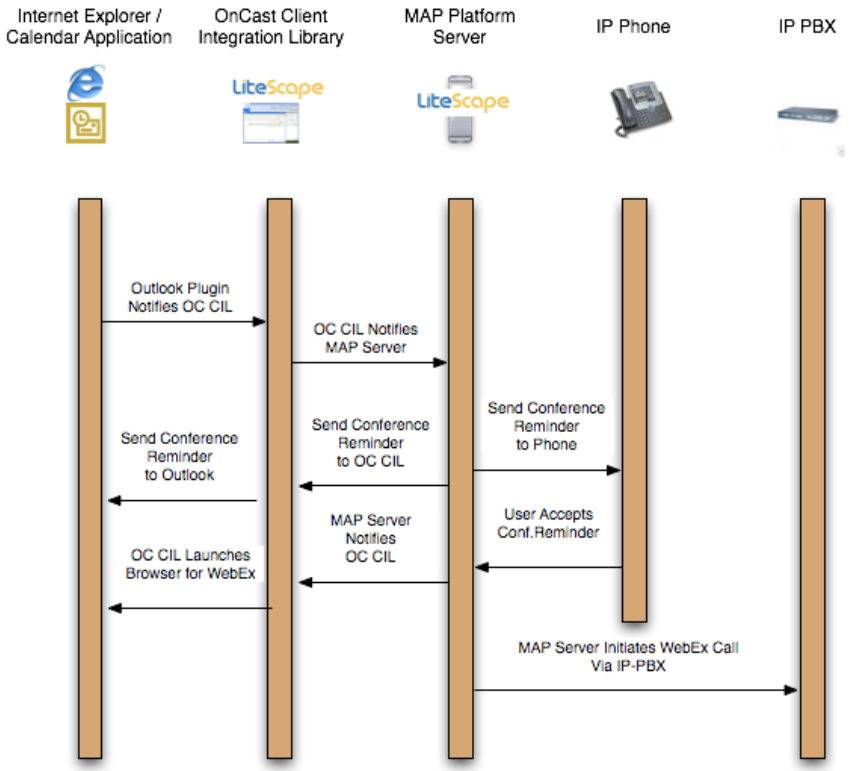


Figure 5: The Process of Launching a WebEx Session from an IP Phone

Conclusion

By unifying an organization's data applications with its communications infrastructure, OnCast optimizes business processes, reduces costs, increases corporate security, and boosts employee productivity. Users no longer have to rely on a mélange of disparate business applications, collaboration tolls, and communications devices from various vendors. Instead, OnCast empowers users to move between the various devices they use for business applications and communications—PCs, IP phones, and IP mobile devices—and, most importantly, to have these devices compliment one another. LiteScape's solutions are unique in the marketplace, in that they leverage various technologies simultaneously including VoIP, messaging, directories, collaboration, presence, and CRM systems. With more enterprises turning to Unified Communications as a means to optimize business processes, LiteScape is poised to become the essential player in this market, with powerful, cutting-edge solutions ready to be deployed today. LiteScape's solutions are already transforming the business landscape, and LiteScape OnCast promises to redefine how businesses operate in the coming years, the same way the Internet did in the last decade

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