MediaTone Integration Platform

Network Architecture Overview

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Introduction

The WebEx™ MediaTone™ Integration Platform offers flexible and robust means for integrating customer and partner applications, services, and portals with the WebEx Interactive Network. This document describes the network connections between customer servers and the WebEx Interactive Network, and illustrates how interactive meetings are handled on the WebEx MediaTone network. It also describes the web pages and API services that reside on each server. The reader should be familiar with the MediaTone Integration Platform APIs (URL, XML, and TSP). A detailed overview of these APIs can be found in the WebEx MediaTone Integration APIs Technical Overview white paper.

WebEx Interactive Network Overview

The web applications hosted in the data centers provide the application-level functionality of the WebEx Services.

MediaTone data switches distributed throughout the network form the Switched Meeting Environment that conducts meetings.

The WebEx Interactive Network (WIN) consists of clusters of WebEx servers distributed throughout the world in WebEx data centers all connected by the WebEx MediaTone network. The WebEx data centers host WebEx customer sites such as http://<company>.webex.com, where customer's web browsers can access their WebEx service. The web applications hosted in the data centers provide the application-level functionality of the WebEx Services – Meeting Center, Training Center, Support Center, Event Center, and Sales Center – where users can schedule and start meetings, join meetings, manage attendees and presenters, obtain reporting information, and so on. MediaTone data switches distributed throughout the network form the Switched Meeting Environment that conducts meetings.

MediaTone

Live meeting data exchanges are conducted on a separate, private, global network called WebEx MediaTone. The MediaTone network is a highly distributed, data-switched network that handles all data, voice, and video traffic. MediaTone uses high capacity optical links, high performance routers, and 'content switches' to provide consistent network performance 24 hours a day, 7 days a week. The graphic below illustrates the MediaTone network topology. Access to the MediaTone network is either via the public Internet or, if a company subscribes to WebEx Premium Network Services, via a dedicated private connection to the MediaTone network.

WebEx Worldwide MediaTone Network

Long haul bandwidth is over-provisioned (target peak utilization is 50%) and carefully managed in order to minimize latency.
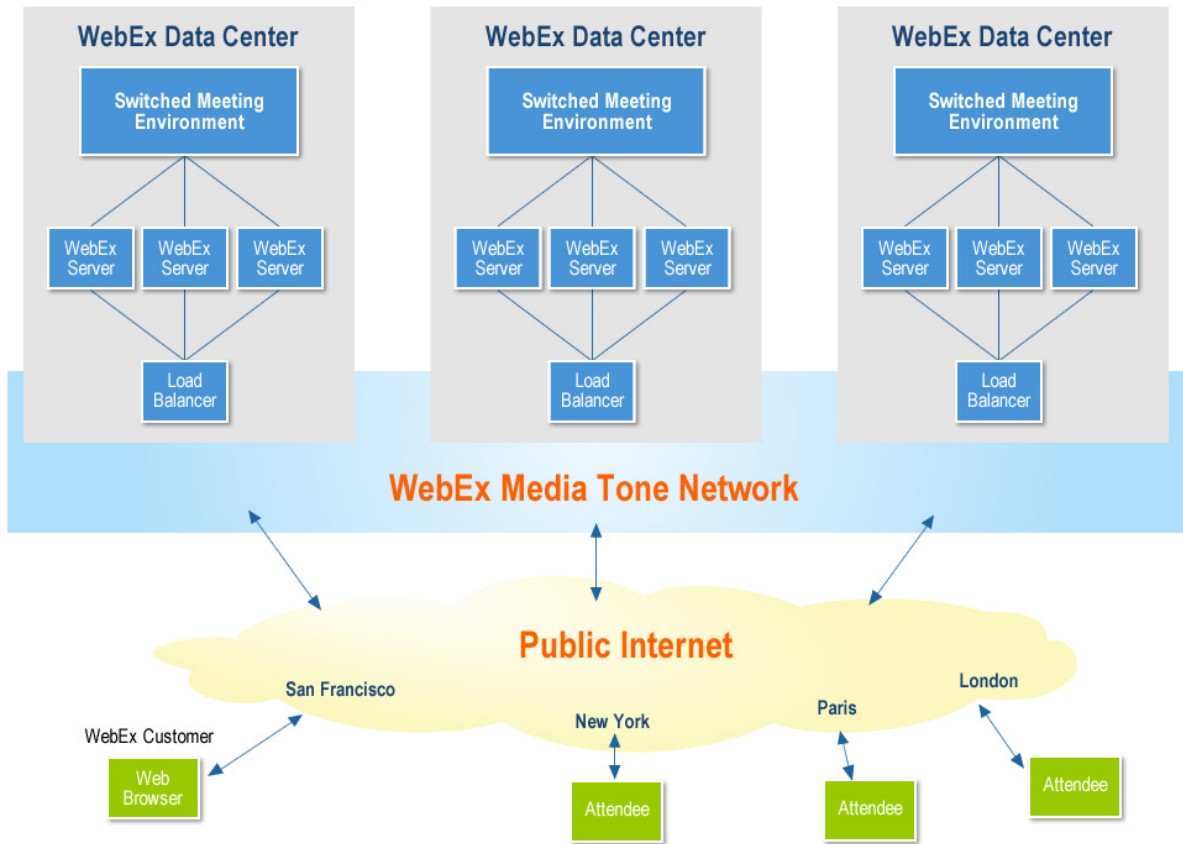
Careful selection of Internet peering points ensures that the MediaTone network is not adversely affected by the variable and sometimes localized 'internet weather'. It typically takes only one or two hops from the customer's browser to the MediaTone network. Long haul bandwidth is over-provisioned (target peak utilization is 50%) and carefully managed in order to minimize latency.

MediaTone network performance is further enhanced by the switched nature of the network. The operation of the MediaTone network is in many ways similar to the operation of the public switched telephony network. Sessions are created in real-time based on user demand and are dynamically routed based on resource availability in order to optimize overall network performance and to prevent bottlenecks occurring.

Server Interactions

When a user is scheduling or managing meetings, attendees, or obtaining history reports, etc., their web browsers are interacting with WebEx application servers. When a user actually starts or joins a meeting, they are passed into the Switched Meeting Environment where the meeting data and interactions occur primarily over the MediaTone network. The amount of traffic passed over the public Internet is minimized by the fact that WebEx maintains network presence at all the major Internet hubs in North America, Europe, and Asia.
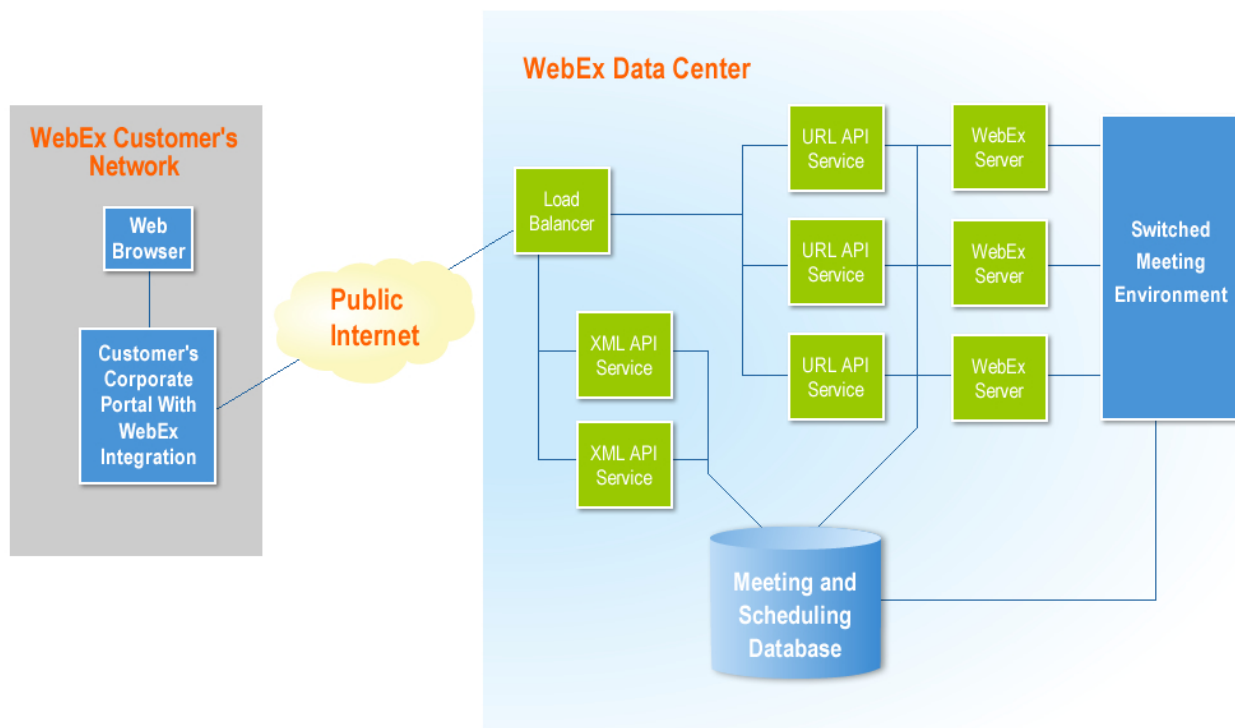
The figure above illustrates the relationships between the customer's users, distributed attendees, and the MediaTone network

Integration Architecture

The MediaTone Integration APIs (URL API and XML API) are configured as services associated with the WebEx application servers in a data center. Customer's applications and portals that utilize these APIs submit command requests to a designated base URL that hosts the service. As with a standard web browser interaction, the requests are handled by a load balancer that optimizes the WebEx and API service utilization.

Consider a typical scenario where a customer has integrated features into their corporate portal, allowing users to schedule, manage, and attend on-line meetings. The portal integration could utilize either the URL API or the XML API, depending on the depth of the integration and specific feature requirements. In this scenario, illustrated below, the user's web browser interacts with the portal and web server on the corporate network, and API requests are sent to the appropriate API service in the data center.

WebEx Data Center

(diagram labels: WebEx Customer's Network, Web Browser, Customer's Corporate Portal With WebEx Integration, Public Internet, Load Balancer, URL API Service, XML API Service, WebEx Server, Switched Meeting Environment, Meeting and Scheduling Database)

MediaTone API services are fully load-balanced, and requests are dynamically routed to the server with the least load in the data center.

API, requests would be directed to the XML API Service through this type of URL:

```
https://[customer_sitename].webex.com/WBXSer-
vice/XMLService
```

These service requests are then passed through the load balancer and dynamically routed to the WebEx API server with the least load in the data center.

URL API Service

The URL API service is integral with the WebEx application server that hosts the WebEx service centers (Meeting Center, Sales Center, etc.). The actions taken with the URL API cause updates or retrievals from the Meeting and Scheduling database.
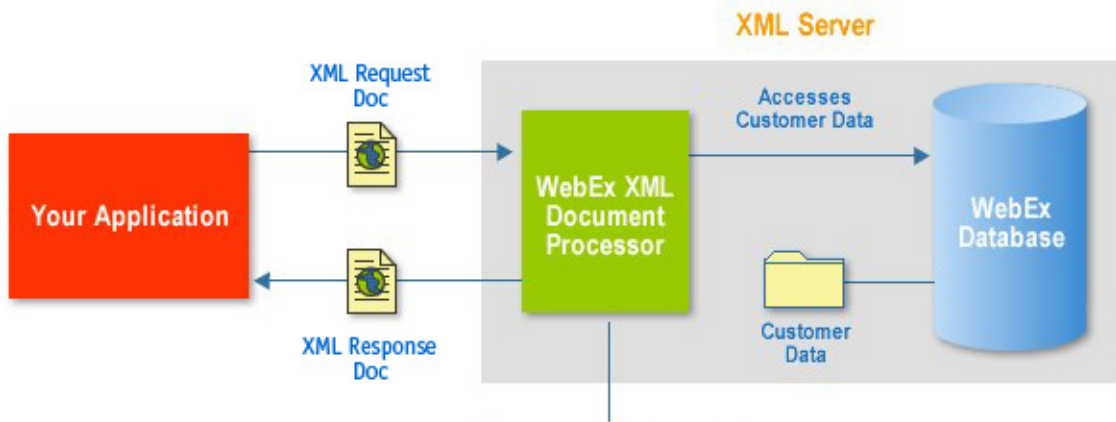
XML API Service

The XML API service is handled by dedicated, redundant servers that provide the service for the entire data center. Like the URL API, the actions taken with the XML API cause updates or retrievals from the Meeting and Scheduling database.

XML interactions between external applications or portals and the WebEx XML API Service occur through a protocol of exchanges of XML documents in which an application sends an XML request document to the WebEx XML server, and then processes the received XML response document. As shown in the figure below, an external application sends a request XML document to perform

a specific request—such as creating a user—to the WebEx XML server. This request XML document describes the state of the elements associated with the operation for this request. The WebEx XML server then interacts with the WebEx database and returns the revised element values for this operation to the original application via a response XML document.

XML Server

XML Request Doc

Your Application

WebEx XML Document Processor

Accesses Customer Data

WebEx Database

XML Response Doc

Customer Data

Services and Operations

Telephony Integration Architecture

The Teleconference Service Provider (TSP) API allows conference network vendors to integrate their telephony services with WebEx meeting services to form a seamless audio/visual collaborative environment. WebEx's services support a host of advanced audio control features both during the scheduling and configuration of a meeting, and during the meeting itself.

The TSP API and associated tools are generally only used by specific teleconferencing service providers that strategically partner with WebEx.

TSP API Architecture

The TSP API is based on a plug-in telephony adaptor architecture that allows plug-in adaptors to be developed for new telephony servers without the need to customize underlying code. This allows providers to integrate with existing or new teleconferencing bridge network equipment.

Some key features of the TSP API architecture include:

• XML-based protocol with asynchronous request/response behavior

• Employs the SSL (Secure Socket Layer) over IP cloud

• Performance to support up to a 1344 port bridge (one chassis) with 350 simultaneous calls

• Works independently of the WebEx URL API and XML API

• Functions across the public Internet

• Integrates with each user's network elements such as proxy servers, firewalls, security servers, VPN servers, and load balancers

• Supports redundancy and fail-over on both the WebEx side of the interface and the teleconferencing side

WebEx servers that provide Web meeting services are hosted by WebEx and located inside the WebEx network. Telephony bridges providing voice conferencing services are hosted by a teleconferencing partner and located inside the teleconferencing partner's network. WebEx servers talk to the bridge through API calls over the internet or a dedicated T1 connection with an HTTP/HTTPS protocol. Each side has their own web server installed to process the calls and requests.

The diagram below illustrates the high-level architecture of the integrated WebEx services network and a teleconferencing service provider.
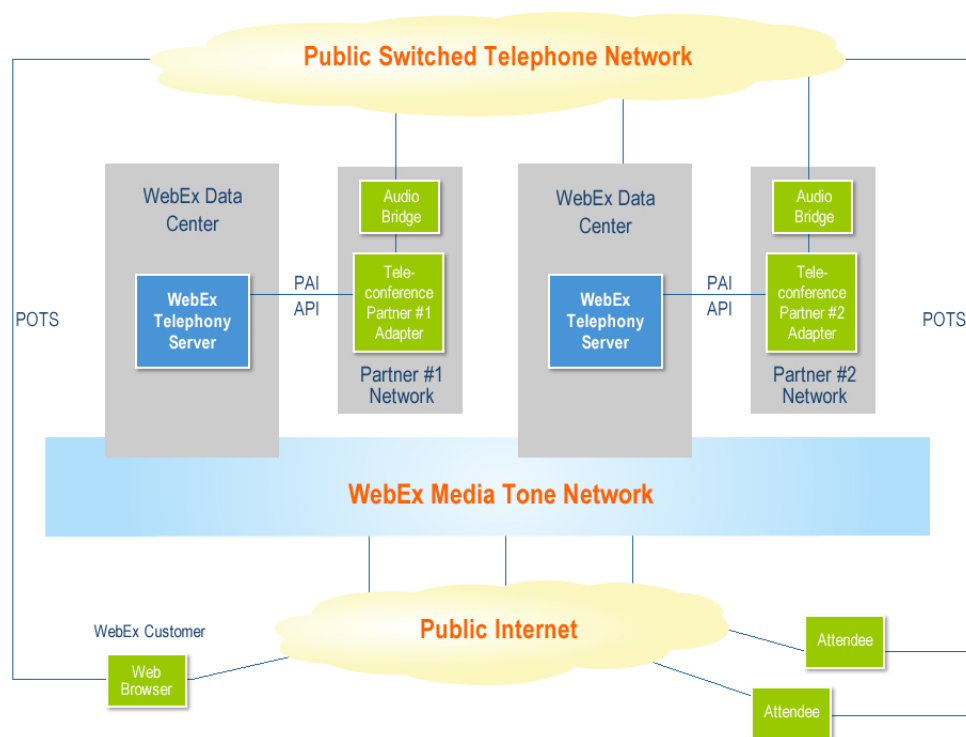
Conclusion

The WebEx Interactive Network architecture provides a high-performance, redundant service architecture for all WebEx services as well as the MediaTone Integration Platform API services. With clusters of servers distributed in data centers around the world, and live communications based on the secure, "dial-tone" quality MediaTone network, customer applications, enterprise services, and corporate portals are assured of reliable, high-performance web collaboration services across the globe.

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