The New Era of Federation

Introducing Universal Collaboration

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The history of communications has witnessed many revolutions, among them the telephone, radio, switchboard, stored control, digital transport, toll-free dialing, network control points, packet transport, IP telephony, and video conferencing. Today, landline phones, mobile phones, televisions, computers, and social networking services are available to - and used by - people around the world. As the communication modes have changed, generations of users have changed their preferred method of communicating as well. For example, text messaging has now become ubiquitous for an entire generation of people.

The services that enable these different types of communication have developed separately. For the most part, the different communications services are delivered on their own independent systems, but technology to unify the systems is emerging. The historic borders that separate these systems and networks will evolve into an exchange framework, helping amplify their usefulness. Simply put, this unifying technology will change the very definitions of networking and communications. This paper describes, at a high level, the concepts of federation and Universal Collaboration – the technologies that will drive the coming transformation and its benefits.

Communication Technology is Complex

Communication technology has long dealt with connection issues between different types of equipment. One solution for the issues is using Multi-Protocol Routers. These routers and related products have delivered broad new classes of solutions, created new markets and increased productivity. As different types of communication technology are developed, component interoperability grows increasingly more complex. Unifying architectures, like those promoted by IP Multi-Media Subsystem (IMS), have helped keep this complexity manageable. But, communication services have branched into areas not inherently designed to be real-time. Individuals typically use separate clients for email, presence and instant messaging, telephone, softphone, video conferencing, mobile phone, and social networking. Each connects to its own system and uses its own directory to access information – such as phone numbers and email addresses – leaving the user to coordinate communication across systems.

Although the term lacks industry specificity, unified communications purports to solve the user management portion of the issue by creating a single client that incorporates a set of functions specific to each service. This new converged client provides a single interface from which a user can access the service set. However, the unified communications approach alone does little to alleviate the complexity of effective infrastructure interoperability among these systems. Unfortunately, some vendors exploit this roadblock by promoting single vendor solutions. These vendors encourage the use of proprietary technology to integrate service infrastructure.

Unifying Services with Universal Collaboration

A standard, vendor-neutral approach is preferable. This approach is the underlying concept of Universal Collaboration. The Universal Collaboration client should support all real-time communication services (voice, video, and text) in both presence (instant) and establishment

(non-presence, "calling") modes. Additionally, the client should also support near real-time and non real-time communication services. Real-time services include short messaging, such as text, voice, and video, which is delivered best effort without requiring an attempted establishment as with cell phone SMS. Non-real time services consist of methods such as email and social networking. By embracing a standard signaling protocol (such as SIP) and a standard role in a standard system (for example, User Endpoint in an IMS style model), the Universal Collaboration client is vendor agnostic to both the communication core and the application service instances powering the communication features.

In today's systems, most of the clients are tied to the network that natively provides their service. Prime examples of this are telepresence systems, such as H.323 and SCCP communication systems. Additionally, it can be seen with Microsoft Outlook and its integration points to Exchange. The client is useful only on its native network. This partitions the world into a collection of enterprises and service providers where services are richly served on an isolated basis and largely unserved across the whole. A few notable exceptions exist, including Short Message Service (SMS) – text messaging – and Multi-Media Message Service (MMS) – picture or video messaging. Both SMS and MMS interwork across mobile networks and are largely client independent. Services offered "over the top" of existing systems' Social Network clients on iPhone and Android platforms are additional examples.

Establishment of a federation exchange network solves the network partitioning problem. Federation provides the ability to expose and extend services, profiles, policies, status, media, and context from one network to another
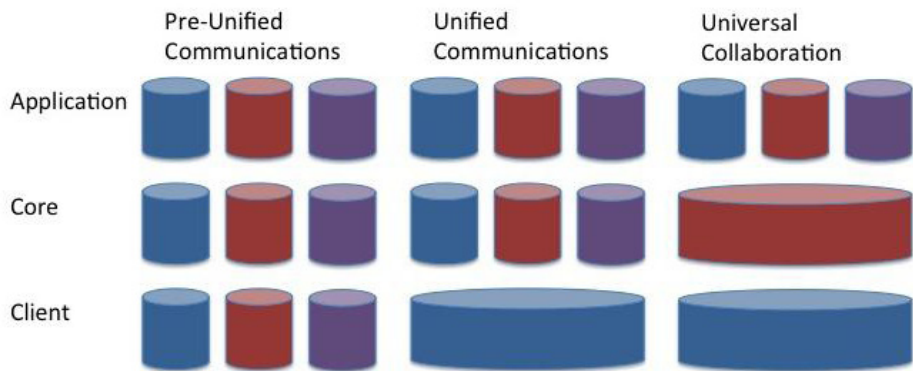
network on a user by user basis or domain to domain basis. Accomplishing this across many networks and service providers requires the creation of one or more federation exchange networks.

There is no standard for federation, just as there is no restriction on the types of services that can be federated. To determine likely federation partners, it is useful to understand typical use cases, and identify technology and protocols that can help address the need.

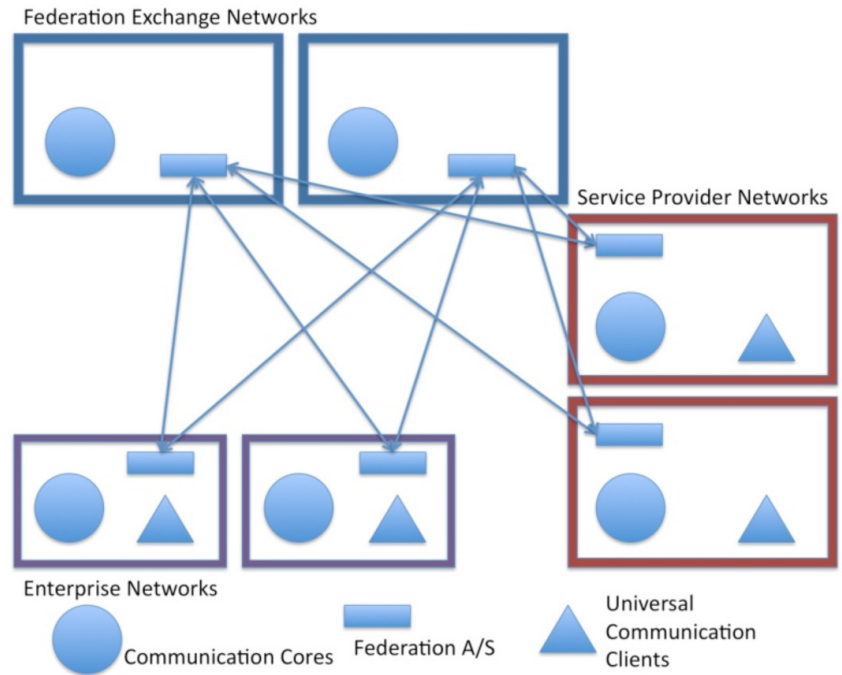## Using a Federation Exchange Network Solution

A federation solution may provide a trust framework for communication sessions and other information extending between networks. This is to provide the involved parties a guarantee that they are actually communicating with the people or their devices represented in the session. A federation exchange network could support presence updates across networks just as it would short messages, such as SMS and MMS.

When federating across networks, security and privacy become key characteristics that must be accounted for by approach. Since privacy laws can vary from country to country and state to state, a user centric approach is most likely to best satisfy the needs of the subscriber, the state, and the

enterprise. The most effective default policy is to require users to opt-in. How and when a user can be contacted should be a personal choice. The trust framework should support both enterprise and network centric policies to supplement the personal policies specified by the subscriber. Using this approach, each enterprise network has its own policy server, each service provider has its own collection of policy servers, and both interact with one of a small number of federation exchange network providers. The exchange would facilitate the secure extension of network presence, policy, messaging, and establishment services.

The emergence of federation and Universal Collaboration could profoundly transform the nature of communications. All communication sessions initiated can be secured and securely indicated to the recipients. Context information that a user is willing to share will be shared with other users according to their personal preferences. Video communication can be easily established across enterprises or consumers using any known contact information. Video Codec incompatibilities can be compensated by inserting video mediation media services as a part of the federated exchange network transaction. When attempting to create a short message to a co-worker, the message can be shared with the federation exchange

network, allowing it to be delivered as a standard SMS or MMS. In addition, a user's enterprise presence could be exported to a public network such as Skype, allowing friends and customers to natively interact with them using the service.

Federation Exchange Networks

Service Provider Networks

Enterprise Networks

Communication Cores

Federation A/S

Universal Communication Clients

About Avaya

Avaya is a global provider of business collaboration and communications solutions, providing unified communications, contact centers, data solutions and related services to companies of all sizes around the world. For more information please visit **www.avaya.com**.

In the future, the boundaries that limit our communication productivity today could begin to melt away. This can lead to an age where people communicate and collaborate without concern for the location or device their contact is using or whether that contact is in the same company. Customer interactions will evolve away from voice-centric automated services into relationship-centric collaboration services. In fact, the very notion of communication being an ephemeral transaction based system will give way to a conversation based system. Each "call," text exchange, email exchange, and social network post will build into the larger multi-threaded conversations each person has. The evolution of Universal Collaboration clients will make these conversations more natural to view,

use, and initiate. Federation innovations could amplify the power of context in communications and help define new markets driving productivity. After all, people are likely to collaborate more as their tools become more powerful. The age of closed communication systems, PBXs, soft switches, email systems, and IM systems should abate. A new era of open communications will universalize access and federate services, allowing businesses to reap the benefits of this transformation.

Learn More

To learn more about Universal Collaboration, contact your Avaya Account Manager or Avaya Authorized Partner. Or, visit us online at **avaya.com**.