ABOUT AT&T GLOBAL CLEARINGHOUSE

Established in 1998, AT&T Global Clearinghouse (GCH) is the industry's first carrier-grade VoIP clearinghouse. The clearinghouse service enables ISPs to quickly establish themselves as "next-gen telcos." Clearinghouse members exchange VoIP traffic among themselves and have immediate access to 220 termination points worldwide, saving them significant time and cost in negotiating and managing agreements with hundreds of other carriers and ISPs. AT&T Global Clearinghouse acts as a broker for the financial settlement of Internet telephony traffic among members, guarantees payment and offers a full range of professional services. As of July 2002, GCH has over 100 members worldwide.

Since 1999, AT&T Global Clearinghouse supported the clearing and settlement of traffic from Cisco, Clarent and VocalTec VoIP platforms. By supporting multiple platforms, AT&T is making it easier for ISPs and carriers to provide a suite of IP services and expand their global coverage. AT&T is committed to supporting multiple platforms and working on initiatives that will lead to industry interoperability. To underscore its commitment to multiple platform support, AT&T is making available its platform requirements to other interested VoIP gateway providers. This will give other providers the opportunity to develop software to support the AT&T Global Clearinghouse settlement process.

In the same year, AT&T Global Clearinghouse announced an innovative tool to measure quality of voice over IP traffic. Developed by AT&T Labs, the AT&T Quality of Service Monitoring Tools (QoSMo) enables GCH members to better manage bandwidth utilization and take corrective action when necessary. In addition, QoSMo enables their members to accurately monitor the quality of the service (QoS) being provided to the end-users of its own network and the networks with which it sends voice traffic. With this innovative measurement system, members can select routes based on quality and price that best suit their business needs. Moreover, it reflects AT&T’s commitment to improving quality of service for the entire VOIP industry.

AT&T Global Clearinghouse introduced Open Settlement Protocol (OSP) solution to Cisco-based members in October 2001. It is a robust settlement solution based on a server-client architecture. The centralized OSP server performs inter-network authentication, call routing and usage recording. Open Settlement Protocol is an open industry standard protocol for inter-network authentication,

call routing and usage recording. As an open standard, it is independent of call setup protocol such as H.323, SIP, and VoIP protocols. OSP facilitates financial settlement for traffic exchanged across platforms and protocol. As the VOIP industry progresses towards interoperability, OSP will become more crucial than ever to the scalability and standardization of VOIP clearing and settlements.

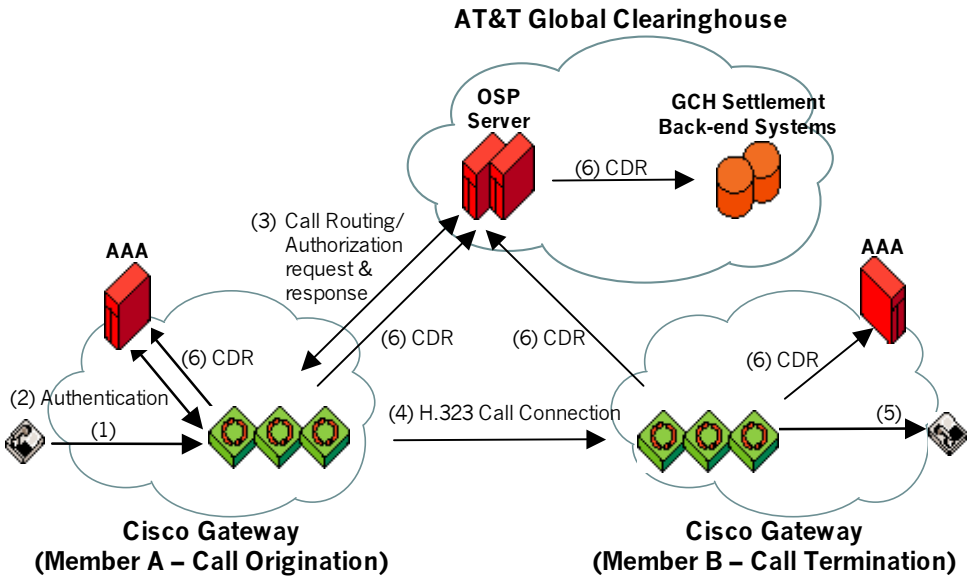
Currently, AT&T Global Clearinghouse's OSP Solution is available for Cisco platform at the gateway level. The AT&T Global Clearinghouse OSP Server and Solution was developed in-house by world renowned AT&T Labs.

WHY?

OSP is crucial to the scalability and standardization of VOIP clearing and settlements. As the VOIP industry grows – VOIP traffic doubled in 2000, for instance – there is a growing demand for settlement function. OSP is supported by multiple vendors. Developing solutions based on open industry standards will unite an otherwise fragmented market and allow the industry to focus on serving customer needs through better quality features and value-added services.

AT&T's OSP Solution enables clearinghouses to settle traffic among multiple service providers on different platforms. Service providers will eventually be able to exchange traffic with almost any other service provider, which, in turn, will boost traffic volume worldwide. Interoperable platforms will also allow vendors to focus development on enhancing product features rather than on proprietary protocol interface.

AT&T OSP IMPLEMENTATION



1. Subscriber in member A originates a voice / fax call to the Cisco gateway.
2. The Cisco gateway authenticates user information (PIN / ANI) with a local AAA (authentication, authorization & accounting) server.
3. After the call is authenticated, the Cisco gateway collects the destination number using IVR script (or derives from DNIS / ANI). If the destination number, as defined by dial-peer, is configured to be routed via GCH OSP Server, the Cisco gateway sends the call information to the GCH OSP Server, which then authenticates the call and passes call routing and authentication information to the originating gateway in a token.
4. The originating gateway passes the unique token to the termination gateway.
5. The terminating gateway validates the token and forwards the call to the receiving telephone/ fax.
6. When the call is completed, both the terminating and originating gateways send the call detail records (CDR) to the local AAA servers as well as the GCH OSP Server. GCH OSP Server will then send the CDRs to GCH Settlement Back-end Systems for clearing and settlement.

WORK DONE BY AT&T LABS

AT&T Labs has developed an OSP server based on the ESTI Tiphon specification. It is implemented in Java and runs on Windows and Solaris platforms.

The server supports an encrypted interface to the AT&T Global Clearinghouse system for the processing of call detail records (CDRs). It also has a web-based interface for configuration with automatic route synchronization for multiple server support. The server reports authorization and usage statistics on a 5-minute basis to a centralized network management system for monitoring purposes. Currently AT&T Global Clearinghouse has 4 servers deployed in two sites for redundancy and disaster recovery.

GCH NEED FOR VOIP INTERCONNECT STANDARD

Because of the breadth of AT&T network and organization, AT&T Global Clearinghouse is positioned better than any other carrier or organization to facilitate the exchange of IP communications among service providers worldwide. The critical requirement for this vision are open standards that enable AT&T Global Clearinghouse to interconnect any two IP devices and accounts (bill) for the communication session, such as a telephone call, between the source and destination networks.

An initial, partial solution to this problem was AT&T Labs' Harvester solution which collects CDRs from various vendor platforms and provides a reliable, consistent CDR for VoIP calls between GCH members. The Harvester solution works, but it is not an open standard for all VoIP vendors to implement. It was designed to collect CDRs but not as part of a secure authorization process for VoIP communications across heterogeneous platforms.

In contrast, OSP was developed by the industry as a solution enabling secure call authorization and CDR collection. By implementing OSP, AT&T developed a standard based routing and CDR collection platform that has the following benefits:

1) Reduced fraud risk - since OSP uses standard, Public Key Infrastructure (PKI) services GCH can authorize peer-to-peer communications between its customers without the risk that an

imposter will fraudulently make, or bill for, phone calls that were not authorized by the clearinghouse.

2) More vendor choices - since OSP is an open standard, it has been widely adopted by major VoIP vendors such as 3Com, Alcatel, Cisco and Lucent. With seamless interoperability between vendor platforms, GCH avoids the risk of being locked into the proprietary solution of a single vendor.

3) Ease of integration and service expansion - since OSP is an Operational Support System (OSS) standard, it is not dependent on any single VoIP technology. OSP has been tested to be compatible with both H.323 and SIP VoIP standards. Other IP communications protocols can be incorporated as they are developed. For AT&T Global Clearinghouse, this means that they can expand services and applications using new protocols with no impact on the back office OSS used for managing call authorization, accounting and billing.