The IPsession™ Appliance
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**IP Communication Applications**

Organizations operating IP Communication solutions increasingly seek enterprise-wide IP Communication Applications to provide value added business tools to their users and maximize return on their investment. The IPsession™ Appliance provides a feature rich and robust IP Communication Application platform that is suitable for both global enterprises and small businesses. This whitepaper provides information on how IPsession Appliance is addressing the challenges of IP Communication applications and their deployment in your business environment.

**NIPA™ Framework and IPsession Appliance**

The Network IP Telephony Appliance (NIPA) Framework from IPcelerate, Inc. is the key to the IPsession appliance applications. Based on open standards, the IPsession appliance that quickly delivers the flexibility and reliability allowing corporations to enhance their business processes and accelerate the return-on-investment for their Cisco IP Communications Solution architecture.

The NIPA™ Framework that is built into the IPsession™ Appliance provides the foundation for Cisco IP Communication applications in corporations, much like the concrete foundation that supports a large building. With IPsession, a scalable, resilient networking structure can be built supporting an enterprise’s entire suite of IP Communication Applications.

Every IP Communication application implementation differ because of variations in business process and requirements. The IPsession™ Appliance provides the design flexibility to handle these varying requirements. The IPsession™ Appliance enables Cisco CallManager clients to take advantage of its open architecture to provide applications to their users. This suite of applications uses CTI and XML applications and provides a feature rich experience for the Cisco CallManager environment.

**Building a Foundation for IP Communication Applications**

Business process integration, resilience, manageability and open architecture are core to the IPCELERATE IPsession™ Appliance and NIPA™ Framework.

- **Business Process Integration** — Workplace resilience is achieved through the distribution of users among multiple, dispersed settings. Technologies that enable telecommuting, desk sharing, office hoteling and employee mobility are essential for ensuring optimal productivity during disruptions.

- **Resilience** — The intelligence of the network provides adaptability, flexibility, and distributed response to single points of failure. The dimensions of network resilience include physical redundancy (links and nodes) and mesh-based network design. However, IPsession Appliance substantially enhances common-sense design principles with key NIPA™ Framework capabilities —including resilient failover/fallback, thread safe, connection pooling etc.

- **Manageability** — Building a converged IP Communication infrastructure, organizations can cost-effectively deploy diverse business applications such as IP paging, accounts codes, status alerts, and call blocking that increase and enhance employee productivity, contact with customers even in the event of disruptions. In the case of multiple IP Communication Applications deployment, manageability of these applications becomes a crucial factor in successful implementation.
• Open Architecture — Networked IP Communication Applications directly benefit from a secure infrastructure and open architecture. IPsession™ uses JTAPI and AXL, the open interface provided by Cisco for integration with CallManager. For example, applications built using IPsession Framework are facilitated and certified and offered coordinated supported by Cisco.

Business Process Integration with an IP Communication Infrastructure highlight the evolution from the traditional PBX enterprise telephony infrastructure. The IPsession™ Appliance provides a true converged platform to deploy applications for the Cisco IP Communication environment allowing organizations to increase the productivity of employees that work anytime, anywhere.

Why Implement a IPsession™ Appliance in your IP Communication Environment?
In today’s competitive business climate, organizations large and small need to adopt information management systems that promote adaptability, resilience and stability throughout the communications infrastructure. The IPcelerate IPsession Appliance helps businesses harness the power of the IP Communications and Integrated IPC Applications that yield productivity and profitability gains. The IPsession Appliance delivers the design principles that enable essential applications. These applications are vital to optimizing the integration of mission-critical applications within a converged networking environment.

IPsession Appliance can be deployed in an enterprise as well as small to medium size IP Communication environments. Figure 1, illustrates an IPsession Appliance deployed in a distributed enterprise environment supporting thousands of IP Phones.

Figure 1: IPsession Appliance in an Enterprise Environment
Figure 2, illustrates the IPsession™ Appliance deployment in a medium to small size business environment. The IPsession Appliance can be implemented in a CallManager cluster to provide applications to all IP Phone users in main offices and branch location(s), connected to the centralized CallManager cluster.

Significant productivity gains can be achieved by developing IP Communication applications capable of handling an organization's entire suite of communications applications, while extending services to remote sites, telecommuters and mobile employees.

Organizations that strategically leverage networks to combine business and innovative technology solutions will enhance their ability to succeed in the new Internet economy. With this kind of instinctive approach, organizations are positioned to drive profitability and improve customer loyalty through increased productivity.
**NIPA™ Framework**

The IPsession™ framework makes it easier to identify, define, create and manage applications in an IP Telephony environment. It enhances the Cisco IP Communication solution architecture providing a number of innovative, value-added applications.

The IPsession Appliance and Application suite enhances the Cisco IP Communication program utilizing the Cisco open architecture in developing a set of products that is not found in a traditional PBX environment. Below is the list of components and benefits of using NIPA™ Framework to create and deploy IP Communication Applications.

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**Benefits of NIPA™ Framework**

The Following is a list of benefits in using the NIPA™ Framework to create and deploy IP Telephony Applications.

- Fully integrated, multiple IPC applications on a single applications platform, written by IPcelerate, or any other developer.
- Provides a unified applications management interface.
- Reduced application interaction with Cisco CallManager reduces the applications load on the CallManager.
- AXL/XML Based Configuration Management
- Authentication & Licensing
- Process Management
- Application Control Management
- Exception and Log Management

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*Figure 3: IPsession Architecture*
• Database Management

• Redundant CallManager (Publisher/Subscriber)

• Browser based user interface, as well as limited access from the IP Phone under the Services menu.

The NiPA™ Framework and IPsession Appliance comes bundled with an award winning suite of applications that provides unmatched features and benefits for an IP Telephony deployment. This application suite won the “Best Applications Suite” Award in the Cisco XML Bakeoff three years in a row. The next section summarizes some of these bundled applications that come pre-installed on the IPsession™ Appliance.

Bundled Application with IPsession™ Appliance

The IPsession Appliance includes a suite of IP Telephony Applications. Some of these applications are for specific vertical markets and some are suited for all IP Communication deployments. The following lists the packaged applications that run on the IPsession Appliance.

i.Cast

i.Cast allows individuals using Cisco IP Phones to dial in a predefined ‘Zone’ phone number and then multicast their message to multiple phones simultaneously. It can be used to announce events of interest, emergency information or page individuals. A few of the other benefits offered by i.Cast are:

- Selected Audio or Text (visual) message announcements and general Broadcasting
- Getting information out quickly
- Replaces trivial memos (lowering cost)
- Sending Text Messages to Individual IP Phones or Groups of Phones
- Scheduled Broadcasting of a Prerecorded Message.
- Recording Messages by dialing a preset Extension.
- Browsing Recently Paged Extensions from the Phones to dial back to the last Caller.
- i.Cast is ideal for internal communications using your existing Cisco IP Phones.
- Integration to conventional Overhead paging system through FXS(E) port on the Gateway.
Figure 4, illustrates IPsession Appliance integration with an analog or digital Overhead paging system.

Figure 4: IPsession Appliance integration with Overhead Paging System

**i.DialOut (Dial Out)**

i.DialOut allows users to broadcast a voice message through the IPsession application to IP Phones as well as any phone via the PSTN. This feature allows for a more tailored approach to broadcast messaging. Extending paging features to users outside of the company is a key enhancement offered by IPsession.

**i.ALERT (911 Alert)**

i.ALERT client runs in the System tray of the Windows Desktop allowing System Administrators or Security Personnel to monitor emergency calls. If a call is initiated to 911 it will display a message displaying call originator. This allows increased emergency response and logging of critical events. This will also deter from 911 being used for non-emergency calls.

**i.Block (Call Block)**

i.Block allows the user to block certain calls from being established in the Cisco IP Communications architecture. Cisco CallManager allows blocking of calls at the routing level. But when it is required to block certain calls individually based on a ‘Do Not Call List’ i.Block can be useful. This feature helps company’s with out-bound call requirements comply with government ‘do no call’ lists and regulations.
i.Forced - Forced Account Code (FAC)

i.Forced restricts calls being made by users based on their privileges. Users must login first to make calls. This allow organizations to control unauthorized calls and track individual usage for billing purposes. This application can be configured in three different modes based on specific requirements.

**Active FAC** - User first enters the destination phone number followed by '#' and then is prompted for the account code. The account code is then entered followed by '#'. In this mode the user is given a predefined number of chances to enter the account code.

**Passive FAC** - User first enters the account code followed by '#' and then the destination phone number followed by a '#'. The User has only one opportunity to enter the phone and account code.

**Smart FAC** - User invokes the i.Forced feature code by pressing '*' followed by the account code followed by a '#'. This code remains active for the next <pre-configured> seconds. All subsequent calls will be validated on this account code. The user can also disable the account code by entering '*'<>-. User should enter '#' after entering digits for dialed number.

i.PreCast (Scheduler)

i. PreCast feature allow users to schedule voice or text message broadcast using IPsession Appliance web interface. Using this feature user can schedule messages by date/time etc. This offers a productivity enhancement by allowing users / administrators to schedule key messages and pages ahead of time.

i.Musix

i.Musix streams multicast audio over the network from an audio source connected to the microphone or line out of the Sound Card. Companies can connect FM radio, a CD player, or other music source to stream the audio. Users press the service button on the phone to listen to the audio. Companies can link an 'idle URL' for the phone to this service.

i.Intercom

This feature enables a user to establish a session with another user by initiating a one-way voice stream from the caller. This will not interfere with any calls in progress; instead a message will display on the IP Phone indicating that a barged call is coming. The user will have the option to accept or ignore it.

i.NVR (IPsession Voice Response)

This application will provide one point minimal voice response that will be required for current IPsession features and other new features that can be and/or should be handled from an interactive responder. Currently this port will allow the recording of messages. Once recorded, messages can be broadcast to a paging zone or a pre-defined dial-out group, or for scheduling messages for later execution.

Backup and Restore Tools

This allows administrators to backup the IPsession configuration daily and restore when needed. Backup will be done on a user configurable drive mapped to the server. IPsession™ Appliance also provides import and export tools for data management.
**IPsession™ Appliance Components—Intelligent IP Communication Applications Platform**

Network managers who design and build IP Communication networks to support IP Telephony based solutions and converged applications must first consider the components that allow networks to operate properly. By creating a robust foundation of basic Application development and deployment framework, the IPcelerate IPsession Appliance addresses five primary concerns of IP Telephony Applications deployment: *manageability, high availability, accessibility, security and scalability.*

**Manageability**

IPsession™ is a rack mountable server that can be easily integrated within the LAN infrastructure. The server comes with all the IPsession™ applications installed and the IPsession™ appliance can be configured and managed remotely using a web-interface. This helps control installation and start-up costs.

**High Availability**

Determining how resilient IP Telephony applications are to change or disruption is a major concern for network managers. This assessment of applications availability is critical. It is essential that every IP Telephony application deployment emphasizes availability as the first consideration in an applications deployment platform. Further, availability must be viewed from the user's perspective. To the user, the application is down regardless of whether a server fails, a router dies, or a piece of fiber is cut. Key availability issues to address include:

- **Hardware Redundancy**—This is often the first level of redundancy in the network. IPcelerate offers, in its modular products for example, options for redundant IPsession™ Appliance. This often provides the first backstop against a network failure.

- **Appliance Capacity Design**—Good design practices include capacity planning. How many application and users can an appliance handle in the worst case? Ascertaining that an appliance can handle double the number of users when a redundant appliance fails must be considered. Capacity planning must be included during the network design phase to ensure the smooth integration of new applications.

With the IPsession™ Appliance, and other solutions for hardware redundancy, combined with effective planning, high availability of IP Telephony applications and resources can be optimized.

**Accessibility**

In an IP Telephony environment, one of the most important thing to consider is how applications are accessed by end users. Applications must be easily accessible by user either from their IP Phones or through an intuitive web-based interface.

The IPsession™ Appliance offers application accessibility through a web-interface, IP Phone XML and a mini IVR system. IPsession™ applications, like, i.Cast, i.Intercom, i.Musix, etc can be accessed from the IP Phones via the *IP Phone Services* Menu, or by picking up the receiver on an IP Phone and dialing pre-configured application access numbers.

**Security**

In a converged network environment where both data, voice and convergence applications use the same network, a security hazard in one component of the converged network can affect other components. It is critical to design and deploy a secure platform for IP Telephony
applications in an enterprise environment. IPsession™ provides various security check points and integration for a secured enterprise-wide IP Telephony applications deployment.

User Level Security

The IPsession™ Appliance access is determined by an Administrator. User level security is designed into the fabric of IPsession™. This means different users with pre-determined access rights may configure/view various available applications under IPsession™, without actually conflicting with other users. This isolated access to the Server by the users protects data on the server from being corrupted while various user-level transactions are being made for data modification and access at the same time.

Server Level Security

IPsession™ supports SSL (Secure Socket Layer) implementation. This means the IPsession™ application web-interface is made available over a SSL-enabled port on the IPsession™ server.

Integration with host based intrusion detection systems

IPsession™ has the in-built capability to offer/support host-level IDS (Intrusion Detection System) like Entercept, etc.

IPsession Appliance flavors

IPsession comes pre-configured with the following two categories based on the number of IP Phone devices registered with IPsession.

- IPsession 200 - Support up 200 users. This system comes with 200 user licenses.
- IPsession 2500 – This is IPcelerate’s top of the line appliance, supporting up to 2500 licenses of IPsession devices.

IPsession Appliance comes with the pre installed Operating Windows 2000 Server operating systems, Microsoft SQL server, IPsession Application Framework and IPsession Applications Suite. After you receive the system, you connect the power and configure the machine IP address and local settings as required. Please refer to Windows 2000 Server help to change IP Address of the server.

- For IPsession 2500 licenses can be purchased in bundles of 100 licenses.
- IPsession Appliance comes with 2 Network cards. Please configure both Network cards IP Address, Subnet Mask, Gateway and DNS on the same VLAN from where you can access both The Cisco CallManager and the Cisco IP Phones.
- Windows 2000 Server Administration and Cisco CallManager Administration knowledge is required to install and configure IPsession Appliance in you IPT environment.
- After purchasing licenses, the administrator can enter license information in IPsession server license page to update the number of users supported. Also please see “Updating IPsession Licenses” section of this document.
Summary - IPsession™ Appliance: Foundation of the IP Communication Applications

Industry studies and recent survey of telecom and data management professionals, indicate widespread agreement that most Enterprise networks will converge around IP-based architectures within the next 3-to-5 years. Equipment costs, management efficiencies, and long-term operational cost benefits all combine to ensure that, while not every implementation will be identical, almost every large-scale voice, video, and data network will be built over a common IP environment. Ensuring that such a system is truly resilient and capable of delivering on the promise of productivity gains will hinge on investing in the right systems in the context of the right network design.

The IPsession™ Appliance provides a tested, Cisco-verified, stable platform of high availability, QoS, security, mobility, and scalability that will prepare your IP Telephony environment to integrate business processes with your IP Telephony Infrastructure. For more information for IPsession™ Appliance contact IPcelerate.

For more information on IPsession™ Appliance, please visit the following websites:
http://www.ipcelerate.com/