HiPath™
Common Application Platform (CAP)

A white paper by Siemens Communications

Enterprise Systems Division

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1. Introduction

About this white paper:

This white paper describes how HiPath common application platform (CAP) creates value for enterprises, fixed line carriers, mobile carriers and developer partners. HiPath CAP is an “ultimate interworking engine for application platforms”, leveraging current network infrastructures, communication platforms, applications and other items providing crossover investment protection. HiPath CAP brings different worlds together such as mobile networks, carrier networks and enterprise networks, harmonizing all platforms with applications.

Many customers are in a multi-vendor environment today and need to protect those investments. HiPath CAP as the ultimate interworking engine enables non related platforms and applications to interwork as one solution. Normally interworking takes place for voice using the Q.SIG (Q.SIG signaling allows certain ISDN features to work in a single-or multi-vendor network) and CSTA (Computer supported telephony application) standards to allow diverse communication platforms and applications to communicate with each other. HiPath CAP provides the interworking of these diverse communication platforms to interwork with each other and with applications seamlessly.

HiPath CAP leverages current Siemens applications, third party applications and management providing access to HiPath real time IP systems. In addition, the new XML Phone Services interface enables the integration of web services that support IP phones and system phones, and provides a number of interesting phone performance features on an ad-hoc basis. XML also integrates well with back office applications and real time IP systems.

HiPath CAP is a central part of the HiPath Architecture. HiPath CAP is a powerful middleware that resides between HiPath real time IP systems and applications. HiPath CAP is embedded into Siemens offerings (HiPath CAP inside) and is available for third party developers to design applications that will interoperate and control HiPath real time IP systems or third party systems.

HiPath CAP integrates with Web services architectures to provide enterprises with nearly complete application portability throughout a mix and match of devices, media and networked services.

Siemens continues to expand its lead in developing communications solutions that streamline operations, centralize management tools and offer a
web services deployment model that’s independent of computer telephony interfaces and proprietary communication platforms.

HiPath CAP enables the creation of open communication environments that are cost effective, enable maximum enterprise flexibility and provide smooth integration with key organizational data structures and applications. The application partner community can use the HiPath CAP middleware to enhance their own solutions with management features, serviceability and security.”

**Value for Customers**
HiPath CAP allows the portability of applications becoming independent from communication platforms within mixed networks, supporting clients and devices.

**Value for Application Partners**
HiPath CAP ensures that their applications will work on various Siemens communication platforms and with different technologies reducing development time and effort.

Innovative CTI solutions are playing an increasingly important role in day-to-day business. They help optimize not just workflow, but the whole value chain, because by bringing together communication and information systems, they create real synergy benefits. In addition, high-performance platforms like HiPath real time IP systems can only unfold their full potential and ease users’ workloads effectively if the right applications are deployed on them.

**Development of specialized customer-specific solutions alongside standard applications**
HiPath CAP, a high-performance common application platform based on open standards, to encourage the development of specialized customer-specific solutions alongside standard applications. This innovative, platform-independent middleware enables the development of individually tailored configurations and industry-specific solutions, while at the same time ensuring greater data consistency, network-wide.

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**2. What is HiPath CAP**

**2.1 Description**
HiPath CAP is a middleware that provides standard protocols and APIs for application developers (CSTA, CSTA 3, TAPI, JTAPI and others). It is a modular and scalable software which enables access to different communication platforms (multi-connectivity) providing application portability across multi communication platforms (multi-domain).

HiPath CAP supports applications with services like call control, media service or system management and serves as a basis for internal and external application development. Open, standardized interfaces provided by Siemens enable better internal and external communication for individual configuration solutions and branch solutions. HiPath CAP enhances the integration of applications and data consistency within the network. HiPath CAP is especially effective in SOAP and XML interfaced applications, which is most popular in HiPath real time IP systems and web services.

**2.2 Call control services**
The services provided by HiPath CAP today include call control services and new media services, both of which are supported by the HiPath CAP Management system. Besides APIs and a selection of standard interfaces (including TAPI, JTAPI, CSTA ASN.1, CSTA XML, CSTA 3, XML Phone Services for Web-Services), TAPI 2.1 and WAV drivers are available to allow the integration of media applications. These have a marked positive impact on the costs involved in developing and integrating software solutions. Thanks to these standardized interfaces – in particular, the state-of-the-art XML interfaces – the effort involved in testing and training is reduced to a minimum. HiPath CAP is also easy to use in heterogeneous environments and works with Siemens real time IP systems including HiPath 3000, 4000, 5000, 8000 as well as with other vendor's communication systems PBX's and Realitis.
2.3 XML Interface

In addition, the new XML Phone Services interface enables the integration of web services that support IP phones and system phones, and provides a number of interesting phone performance features on an ad-hoc basis. Thus, HiPath CAP can bring about a distinct improvement in communication throughout the enterprise. With the Collaboration on Demand function, for example, software can be initialized directly from a phone to set up NetMeeting sessions in a matter of just seconds. It's also possible to use the connection data from a phone call to access related information such as an e-mail address or an electronic business card. In addition, access to data in the corporate directory (LDAP on demand) is still possible by phone, even if a user’s desktop PC is switched off.

Based on the new XML Phone Services API, new web services for HiPath 4000 V2.0 is available using call related data such as exchange of numbers and addresses, sending emails, initiation of Netmeeting sessions and access to Corporate Directory using telephone buttons.

HiPath CAP provides a “HiPath ComScendo On a Button Suite” with phone services applications supporting communication and collaboration:
- **EasySee** (press a button and you see the directory entries of the members of a call/conference on your PC screen)
- **EasyLookup** (press a button and you have access to corporate directory and can search for numbers and names using the telephone only)
- **EasyMail** (press a button and Microsoft Outlook provides a mail form with filled in addresses of the members of a call/conference on your PC screen)
- **EasyShare** (press a button and Microsoft Netmeeting creates a session with the members of a call/conference on your PC screen)
- **EasyConference** (supports the Meet Me Conference Server and makes it more user friendly)

HiPath CAP works as an application server for multiple HiPath Communication Systems, but can also be mixed with private branch exchanges from 3rd party vendors. In the near future communication systems from Alcatel, Nortel, Avaya, Tenovis and Cisco will be supported.

It has a large number of advantages for customers as a result. XML’s easy-to-understand structure and the fact it is so well known saves on development costs in creating new systems and applications. Likewise, applications based on TAPI, CSTA ASN.1, and XML can be adapted easily, thus safeguarding current investments.

2.4 Management

HiPath CAP’s enterprise management environment makes it easy to handle software licensing for users and software developers — even if they are using other HiPath CAP features or not. HiPath CAP can do even more: it handles the logging, deployment, start-up and shut-down of remote services.

3. Unique Value Proposition

**Value for Customers**
HiPath CAP allows the portability of applications, becoming independent from communication platforms within mixed networks, supporting all clients. The IP connection makes media applications / solutions less expensive.

**Value for Application partners**
HiPath CAP ensures that their applications will work on various Siemens platforms and with different technologies reducing development time and effort. There is a huge installation base of Siemens and non-Siemens platforms.
4. Benefits of HiPath CAP

4.1 Flexible benefits
HiPath CAP is the ideal tool for all businesses that are looking to protect their investment in communication equipment, yet are focusing on deploying an advanced and efficient communication solution. Here, integration with existing workflow applications is especially relevant. Java portlets that provide communication functions – a dial button, for example – can be incorporated into existing programs.

Flexible use of applications based on open standards
CTI application support for clients in different infrastructures offers reuse across the network. Smooth migration of applications from a circuit-switched network to an IP network, using the same application, provides Investment protection and leverages legacy communication platforms.

4.2 Benefits for customers
Customers can retain applications as the infrastructure migrates from a circuit switched to an IP infrastructure. This allows enterprises to combine different media—voice, fax, text, and video—into a single communication flow providing the most flexible use of applications based on open standards (Supports industry standards: JTAPI, TAPI, CSTA, XML). This streamlines operations providing easy to manage: server architecture, central management tools for services, users and deployment is independent of CTI applications that become independent from communication platforms. Within mixed networks, HiPath CAP works with HiPath real time IP systems and other PBX’s providing a scalable, and open (supports 3rd party CTI software) platform. This translates to a cost effective architecture while reducing e.g. training needs.

HiPath CAP supports the real time IP system HiPath 4000 and can be used in large distributed environments, thus making it one of the driving forces in the migration of traditional telecommunication networks to the IP world. As an interface for third-party products, it facilitates the alignment of partner solutions as part of the HiPath Ready program (described later in this paper). The integration of the new standard enables HiPath CAP to support XML-coded applications, in addition to applications based on TAPI or CSTA. HiPath CAP is now able to support applications based on TAPI, as well as XML-based and CSTA ASN.1 coded applications.

4.3 Benefits for Application Partners
Application partners develop applications once—HiPath CAP ensures they will work on various Siemens communication platforms and with different technologies. Application partners can use HiPath CAP provided services to enhance their own applications with management features, serviceability and security. This allows for quicker time to market for application development by leveraging HiPath CAP services, open interfaces (JTAPI, TAPI 2.1/3.0, CSTA XML, CSTA ANS.1 and CSTA 3). The best part is that in a multi-platform environment, applications become independent from HiPath real time IP systems and other PBX’s. Enterprise deployment of services become easy with enterprise start-up and shut-down of remote services, enterprise remote logging services and enterprise user management.

5. Customer Success Examples

More than 200,000 Siemens users already use HiPath CAP
More than 200,000 Siemens users already use HiPath CAP! They click and dial from the Siemens Corporate Directory. A large software company in Germany uses about 55,000 HiPath CAP clients! They have provided telephony on every desktop, signaling incoming messages on the desktops.
License Key Frame Agreements with partners have packaged HiPath CAP with their own solution and resell it. This agreement has put those partners in a better competitive position. In such an agreement, the partner commits to a specific number of HiPath CAP licenses for a special price. e.g. a Frame Agreement could be signed for 3,000 licenses per year which would command a better price than ordered separately.

Also German companies have developed a specialized Attendant Console for the Hospitality market and have signed a License Key Agreement to globally market their solution
- Web Integration (XML Phone Services)
- Booking Conference Rooms via PC and/or Telephone
- Information System for Train Schedules

Also in another example, a company used an IBM Portal Integration via HiPath CAP’s Java Portlet and HiPath telephony through IBM’s WebSphere Portal.

There are easy ways to increase productivity – even Siemens uses it as a telephone icon in the Siemens Corporate Directory

There are many scenarios to consider like LDAP access to company directories, Weather Reports, Time Tables etc

6. HiPath CAP Media Services

Media services include a media interface which is needed to enable Unified Messaging Systems. For example, to be connected using just IP, we eliminate the need for costly cards in applications. The media services provide an application programming interface (API) that uses the TAPI 2.1 and WAV drivers to allow the integration of media applications. This functionality alone will lead to considerable savings and help optimize companies’ communications in general. Another important feature is the ability to connect to third-party systems from a number of vendors. That’s important because our customers commonly operate networks that consist of equipment from more than one manufacturer but, nevertheless, want a unified application network.

The main benefits are:
1. Pure IP-connectivity for communication applications.
2. The media stream is “harmonized” with HiPath 4000 and HiPath 3000 due to Cornet IP (First step in interworking with HiPath gateways as the HG35xx and HG15xx).
3. The solution is getting less expensive because S0/S2M cards are no
7. HiPath CAP Product Packages

7.1 HiPath CAP Inside

HiPath CAP Inside is the marketing model targeted at Siemens applications only.

Within this HiPath CAP inside model, HiPath CAP components are integrated in applications like HiPath ProCenter, HiPath SimplyPhone family, HiPath Display Telephone Book, HiPath Busy Lamp Field, HiPath Hospitality and more. No separate orders are needed for HiPath CAP as well as no additional HiPath CAP client licenses is required.

7.2. HiPath CAP is delivered via CDs containing the following:

- HiPath CAP executables with an installation tool
- HiPath CAP documentation
- Installation Guide
- Administration Guide
- Software Development Kit (SDK)

7.3 Client licenses

- **HiPath CAP Entry** offers outgoing dialing functions for CSTA III, CSTA XML, TAPI and JTAPI interfaces for entry level CTI.
- **HiPath CAP Standard** offers the entire implemented scope of CTI functions without ACD components for CSTA III, CSTA XML, TAPI and JTAPI interfaces.
- **HiPath CAP Advanced** offers the entire implemented scope of CTI functions including ACD components for CSTA III, CSTA XML, TAPI and JTAPI interfaces.

7.4 Single HiPath CAP, ONE SWITCH

This is a typical configuration scenario that communicates with one CTI server that is connected to one real time IP system or third party PBX.

7.5 Single HiPath CAP, MULTIPLE SWITCHES

In this scenario HiPath CAP is installed as a distributed system on several servers close to the respective HiPath real time IP system or third party PBX.
Call control service can be distributed across the network based on load balancing, performance or security. HiPath CAP Management (administration and licensing) can be installed on any one server per distributed HiPath CAP installations.

**One application in a mixed environment**

**HiPath CAP customer integration examples:**

**Customer – International Banking**

This international banking example’s database operates a worldwide communication network with Nortel Meridian PBX’s and Hicom300/HiPath 4000 communication platforms within Europe. This international banking example previously used Lotus clients and Windows XP

**International Banking Customer Requirement:**

1. CTI functionality for 75% of the users to:
   - make call from Lotus Notes client with access to private directory
   - make call from group directory
   - make call from proprietary CRM application
   - pop ups with data related to incoming calls

2. A dedicated CTI desktop application was requested for (25%) of the users.

**HiPath CAP solution:**

We provided HiPath CAP to the customer so that they can develop the solutions internally as well as purchasing several Java assistants from a software house. We offered HiPath SimplyPhone/HiPath ComAssistant.

**Customer – International web based retail**

**Customer infrastructure:**

The international web based retail example currently is operating a mostly Hi-
Path 4000 network, but uses Avaya Call Centers. The international web based retail example uses their internally developed very large workflow application for their Avaya call centers.

**Customer Requirement:**
Enable my in house designed workflow application to dial.

**Customer solution investigation**

1. Avaya offered a TSAPI solution which was very expensive and would need a large hardware investment by the customer.
2. The HiPath CAP offering consisted of:
   - HiPath CAP
   - Connectivity to Avaya call centers
   - We proposed JTAPI as an interface
   - A HiPath CAP partner developed the software solution using JTAPI and created a programming interface for the customer’s internal developers.
   - The customer is integrating CTI features based upon our recommendation.

**Customer – International Automotive**

**Customers infrastructure:**
This international automotive example currently uses their own very large workflow application in conjunction with an Alcatel 4400 call centers.

**Customer Requirement:**
- ComAssistant

**HiPath CAP Offering**

1. We provided HiPath CAP with connectivity to Alcatel
2. We offered ComAssistant

**7.6 HiPath CAP Interworking**
Each HiPath real time IP system or third party PBX communicates normally with its own associated HiPath CAP server. The HiPath CAP servers are connected through the customer LAN. Although several HiPath CAP components are distributed on several servers, everything is still controlled by one central HiPath CAP Management. This is an example of the HiPath 8000 in a data center.
There are other possibilities to provide HiPath CAP configurations like:

One HiPath CAP server for several HiPath real time IP systems or third party PBX's. When using multiple HiPath CAP installations (HiPath CAP clusters) different versions of CSTA must be used at the same time on the same LAN (e.g. CSTA I ASN.1 & CSTA III ASN.1) several HiPath CAP clusters need to be configured for this scenario.

Some examples of the benefits of multi-domain interfaces is a customer who wants to run CTI applications today and needs this application on each communication platform. This communication platform needs to have a middleware installed to run the application. Multi connectivity means that there is one middleware for several HiPath real time IP systems or third party PBX's.

HiPath CAP customers that have implemented HiPath 4000 or a HiPath 4000 distributed architecture only need to purchase one HiPath CAP for all HiPath real time IP systems or third party PBX's.

For migration reasons, Hicom 300 H systems are also supported and could be integrated into a multi-domain configuration with different HiPath real time IP systems as HiPath 3000, HiPath 4000, HiPath 5000 and HiPath 8000. HiPath CAP can also be connected to the following third party communication systems – Alcatel, Nortel, Avaya and Cisco.

7.7 License keys

Associated with a customer’s order, a set of license keys are generated at the Siemens production site and delivered to the customer / HiPath CAP Management server via downloads from an Internet site. A license key contains the information about the application vendor, application, customer, system and the number of clients sold.

7.8 HiPath CAP management

HiPath CAP Management serves as the central component for controlling and administrating a (potentially distributed) HiPath CAP installation. Administration of HiPath CAP components distributed across multiple servers is accomplished by tracking IP addresses / ports for addressing specific HiPath CAP services. Further management capabilities include administration of HiPath CAP users, administration of licenses for HiPath CAP as well as HiPath CAP based applications, and controlling license usage by HiPath CAP users and administrating user roles.

HiPath CAP Management comprises several functions listed below:

**Central component for controlling and administrating**

**Configuration Management**

HiPath CAP Configuration Management (= Service Configuration Management) serves to manage the connection between Communication Platforms and HiPath CAP components, and to define where HiPath CAP components are installed.

**User Management**

HiPath CAP User Management

Every HiPath CAP user must be stored in HiPath CAP User Management (Service User Management), providing identification and authentication data and defining a user’s capabilities. This ensures that only authorized users can access the applications. SUM also verifies that only users with a valid license are granted access to HiPath CAP and application services.

Additionally, SUM keeps track of the assignment of users and their devices to the (maybe distributed) PBX infrastructure. As a consequence, application developers e.g. needn’t care of which HiPath 4000 switch a specific device is located – they can address any device via the multi-domain interfaces of HiPath CAP, the platform taking care of proper address resolution.

**License Management**

HiPath CAP License Management (= Service License Management) is used by HiPath CAP internally, and is offered as a service for HiPath CAP-based applications as well. SLM is designed to process license keys provided by Siemens, activate the licenses, and keep them ready for use by HiPath CAP clients and applications. SLM keeps track of available licenses and licenses in use, issuing
Fault Management

HiPath CAP Fault Management (= Service Fault Management) works together with the central HiPath Management and enables the integration of HiPath CAP components as well as HiPath CAP based applications into HiPath Management. HiPath CAP works as a “connection engine”. With SFM, HiPath CAP also ensures FM-Support to applications if HiPath Management is not available. In relation to HiPath Management, HiPath CAP plays the role of an Element Manager. The functionality of SFM is based on SNMP (Simple Network Management Protocol) and a HiPath MIB (Management Information Base).

8. Supported Systems (Switches)

- HiPath 3000/5000 V4.0, V5.0, HiPath 4000 V1.0, V2.0
- HiPath 8000 v1.0
- HiCom 300 H from V1.0 / HiCom 300 E V3.4
- Octopus E300/800 Rel.6.5/10, Octopus F200/400/600
- Nortel Meridian I, Release 25
- Alcatel OmniPCX Enterprise, Release 5.1
- Alcatel OmniPCX Office, Release 3.0
- Avaya Definity G3 R 10.0
- Cisco Call Manager V4.0

9. CTI Open Interfaces and Standards

HiPath CAP's open interfaces and standards:

- **Microsoft’s Telephony API: (TAPI)**
  - TAPI defines standards for simple call control and for manipulating call content for both client - and server -based applications
- **Java's Telephony API: (JTAPI)**
  - Implementations are the interface between Java TM computer telephony applications and telephony services. JTAPI defines the access to one or more of the following areas of functionality: Call Control, Telephone Physical Device Control, Media and Administrative Services for Telephony.
- **Computer Supported Telecommunications Applications: (CSTA _III)**
  - By being able to observe and act on both telephony and data activities, CSTA is able to support ‘media blending’ of telephony, email, chat etc. by the computer application, it could be used in the
    - traditional ASN.1 format, or
    - XML format
- **Extensible Markup Language: (XML)**
  - XML is a World Wide Web Consortium standard that lets you create your own programming tags based on the CSTA III ECMA standard.

**WAV-Format**

The RIFF file format is designed to be as generic as possible. It is used for waveform, AVI, palette, and other information standards that may need to be mixed and used together. Generally speaking, though, any file with a WAV extension will only contain waveform data.

RIFF provides information in chunks and subchunks. The header for each chunk describes the length of the chunk and the type of data the chunk contains (WAVE, for instance, is the string identifying a WAVE chunk).

The Wave subchunk is immediately followed by the WAVE Format Chunk. It is this small chunk that defines the structure of the waveform data that will
follow. It defines the format of the waveform, the number of channels used (with 0 being mono, 1 being stereo), the sampling rate, the kilohertz at which is recorded, along with the data block size. Of these, only mono/stereo and the sampling rate are likely to be of interest unless you intend to write your own custom waveform player.

10. HiPath CAP software development kit (SDK)

The HiPath CAP SDK contains Application Developer Guides and tools to support development and tests. Especially for the XML Phone Services API, we provide an interactive tool to support developers creating phone specific routines.

The SDK is available for download over the Internet. We also hold seminars on the design and development phases of projects and we even organize workshops which we take an active part in specific customer projects.

11. HiPath CAP Developer partner network

For the latest information on the HiPath Partner Ready Program use this web link. http://www.siemens.com/hipath-ready

Siemens Communications (Siemens Com) has launched the HiPath Ready Partner Program to be able to respond more effectively to customers’ specific needs and requirements, and has invited systems houses and software developers to work in collaboration with its own departments to create new products and solutions to complement the existing HiPath portfolio. In addition to CTI solutions, eCRM and call center applications, these could include specially tailored plug-and-play solutions that ensure full interoperability with HiPath. The reason for this initiative is that it’s not always possible to create optimum solutions to meet industry-specific requirements when support is available from just one single manufacturer.

With HiPath Ready Program, everyone benefits from the situation: Siemens partners receive support in the form of development kits, comprehensive information resources, test labs, and certification. Plus, customers get optimal solutions designed to meet their specific requirements. An overview of the different types of certification programs are available at http://www.siemens.com/hipath-ready, along with a list of already certified solutions created by HiPath Ready partners.

Our partners are systems houses and developers who work closely with us to create solutions designed to meet customers’ needs. It’s a win-win relationship: We can concentrate on specific requirements to a greater level of detail, and our partners can obtain Siemens certification. We’ve also put together an entire partnership package, the HiPath Ready Partner Program (www.siemens.com/hipath-ready). Its primary focus is the development of plug-and-play solutions based on HiPath CAP.

The reason for this initiative is that it’s not always possible to create optimum solutions to meet industry-specific requirements when support is available from just one single manufacturer. With HiPath Ready, everyone benefits from the situation: Siemens partners receive support in the form of development kits, comprehensive information resources, test labs, and certification. Plus, customers get optimal solutions designed to meet their specific requirements. An overview of the different types of certification programs is available at http://www.siemens.com/hipath-ready, along with a list of already certified solutions created by HiPath Ready partners.

Businesses are increasingly realizing the importance of integrating their applications into a seamless environment capable of delivering uniform quality of service to customers for all their sales, service and support needs.
Integrating applications into a seamless environment

- Customers gain the flexibility to use applications based on standard protocols
- HiPath CAP allows the portability of CTI applications and support for clients across different communication platform infrastructures
- HiPath CAP facilitates integration of applications into the HiPath Management System
- Customers gain the ability to migrate their CTI infrastructure from a classic telephone network to IP, using the same application platform.

Many times, a single vendor cannot supply all of the elements required to complete an application solution. Vendors are able to assemble components from outside vendor partners and to simplify integration of vendor products enhance their potential for success within these complex markets. Very important is the reduction of service cost for installations and sustaining, both for Siemens and for the 3rd party vendors.

3rd party vendor can choose to either
- Develop and sell an application without certification (partners own responsibility)
- or may rather
- Pursue certification at a Siemens HiPath Ready Lab and advertise that fact.

Benefits for developer partners:

Developers can develop applications for Siemens products once. HiPath CAP ensures that they work with different Siemens real time IP systems using potentially different technologies. Developers can use HiPath CAP-provided services to enhance their own applications with management features, serviceability, and security. HiPath CAP services reduce development time and effort. Companies can integrate their applications with HiPath™ applications and make them part of the Siemens application portfolio that fully leverage HiPath™.

Siemens HiPath Ready Partner advantages include:

- Technical support from a global leading supplier of IP convergence solutions
- A powerful worldwide accepted base of HiPath real time IP systems for a wide range of sophisticated partner applications
- Access authorization for HiPath Open Interfaces
- Convenient access to Siemens technical support
- Shorter development times, lower development costs
- Reduced development effort, quality assurance
- Shorter time to market, with total flexibility and complete control of business
- Transparency at partners level
- Opportunities for cooperation with other Siemens HiPath Ready partners
- Public relations opportunities
- Reduce Siemens and 3rd Party Vendors cost for integration and sustaining service.

12. What analysts are saying

Siemens "has a clear idea of what it is that customers actually want" 

IDC analysts also confirm the leading role played by HiPath, pointing out that Siemens "has a clear idea of what it is that customers actually want". With this product (HiPath CAP) the Siemens HiPath convergence architecture is being opened up still further to major industry standards. Siemens worked directly with the ECMA board in developing this ECMA standard (published as ECMA standard 323), and is now the first manufacturer ready to offer a product operating on this basis.
13. Summary

HiPath CAP is a powerful middleware
Optimize not just workflow but the whole of the value chain
Development of individually tailored configurations and industry-specific solutions
Ensuring greater data consistency, network-wide.
ultimate interworking engine providing crossover investment protection

1. Leveraging time to market for integration
HiPath CAP (common application platform) is a central part of the HiPath Architecture. HiPath CAP is a powerful middleware that resides between the HiPath real time IP systems and applications. HiPath CAP is embedded into Siemens offerings (CAP inside) and is available for third party developers to design applications that will interoperate and control the HiPath real time IP systems.

2. Innovation through productivity
Innovative CTI solutions are playing an increasingly important role in day-to-day business. They help optimize not just workflow but the whole of the value chain, because by bringing together communication and information systems, they create real synergy benefits. In addition, high-performance platforms like HiPath real time IP systems can only unfold their full potential and ease users’ workloads effectively if the right applications are deployed on them.

3. Tailored Solutions
HiPath CAP, a high-performance common application platform based on open standards, to encourage the development of specialized customer-specific solutions alongside standard applications. This innovative, platform-independent middleware enables the development of individually tailored configurations and industry-specific solutions, while at the same time ensuring greater data consistency, network-wide.

4. Multi vendor environment
HiPath CAP is an “ultimate interworking engine”, leveraging current network infrastructures, communication platforms, applications and other items providing crossover investment protection. HiPath CAP brings different worlds together such as mobile networks, carrier networks and enterprise networks, harmonizing all platforms with applications.

14. Abbreviations

API Application programming interface
ASN.1 Abstract syntax notation no. 1
CAP Common Application Platform
CBfWG CallBridge for Workgroups
CSTA Computer supported telephony application
CTI Computer telephony interface
ECMA European Computer Manufacturers Association
GUI Graphical user interface
HTTP Hypertext transport protocol
LAN Local area networks
MIB Management information base
PBX Private Business Exchange
SCC Service for Call Control
SDK Software development kit
SFM Service for Fault Management Service
S-HTTP Secure HTTP
SCM Service for Configuration Management Service
SFM Service for Fault Management Service
SLM Service for License Management Service
SNMP Simple network management protocol
SOAP Simple Object Access Protocol
SUM Service for User Management Service
TAPI Telephony application interface
Q.SIG Q.SIG signaling allows certain ISDN features to work in a single-or multi-vendor network.
XML eXtended markup language