

FENICS IP Telephony Services

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(Manuscript received June 9, 2003)

The Japanese broadband Internet market has been increasing dramatically since ADSL (Asymmetric Digital Subscriber Line) services started in 2000, and its growth is currently the fastest in the world. The main factors driving this growth are the Japanese Government's "e-Japan Strategy," technology innovations, and a cheap usage rate. IP telephony services started emerging in 2002 based on the development of the broadband Internet market. The IP telephony services market in Japan is also increasing dramatically because of its low costs and cheap usage rates. Fujitsu is committed to providing its customers with the best outsourcing services by exploiting IP telephony. Fujitsu created the FENICS IP Telephony Services so that enterprise customers can exploit IP telephony technology, broadband Internet technology, and Fujitsu's knowledge of outsourcing and the network services business. In the short time that this service has been available, it has already become the market leader. The key feature of the FENICS IP Telephony Services is that it enables customers to reduce their total costs and simultaneously accelerate their business operations. This paper describes the background of IP telephony services in Japan and outlines the FENICS IP Telephony Services and some related best practices.

1. Introduction

As a leading services provider, Fujitsu has established a new business model for enterprise extension services called the "FENICS (Fujitsu EnhaNced Information and Communication Services) IP Telephony Services."¹⁾ In these services, we provide consultations and design services; provide and maintain access to extensions, PSTNs (Public Switched Telephone Networks), and mobile phones; and integrate Internet services with intranet services.

The FENICS IP Telephony Services enable customers to apply IP as a core enabler to lower their telephony costs and reduce the time needed to change their business processes.

2. Background

In Japan, multimedia and broadband serv-

ices emerged about 10 years ago.

However, at the time, the Internet had only just started and there were no affordable broadband, wide-area network services and no readily available large-capacity storage devices. Therefore, multimedia and broadband services were restricted to laboratories and universities.

The Japanese Government devised the "e-Japan strategy"²⁾ in 2000 based on some important network and storage technology innovations that had been made. At the same time, the carrier business was deregulated and many NSPs (Network Services Providers) and ISPs (Internet Service Providers) started to provide ADSL (Asymmetric Digital Subscriber Line) services. Now, the market has become so competitive that broadband Internet services in Japan are the cheapest in the world. This has resulted

in a dramatic increase in the use of broadband Internet services.

The increased customer base has enabled ISPs to provide upper-layer services such as the provision of content and streaming. In 2002, the Japanese Government also developed IP telephony technical regulations and telephone number rules so that Japan can become the world leader in information technology (IT).

Most of Japan's NSPs and ISPs have started public IP telephony services based on the broadband Internet; however, they basically have not provided similar services in the enterprise network area. Fujitsu recognized this shortcoming and used its IP network technology and experience in outsourcing and network services to provide a total service for enterprise customers that use the public IP telephony services.

3. Market

This section describes the Japanese Government's strategy, the broadband Internet market, the public IP telephony services market, and the enterprise extension market.

3.1 Japanese Government strategy

The Japanese Government devised the e-Japan strategy in 2000. The aim of this strategy is to enable broadband Internet access to public services, medical care, education facilities, entertainment, and new services. The Government has

set a target of 20 million broadband subscribers by the end of 2005 (**Figure 1**).

About 20 years ago, the Government granted carrier licenses to a few select companies, for example, NTT, KDDI, and Japan Telecom. Then, in 2003 the Government decided to further deregulate the carrier business in order to achieve its e-Japan strategy objectives. This decision is seen as one which will introduce market forces to the carrier business and lead to further development of high-quality, cheap-rate broadband Internet services for Japanese consumers.

3.2 Broadband Internet market

ADSL subscriptions in Japan are increasing by 450 000 a month and are forecasted to exceed 10 million at the end of 2003.

In 2002, almost all Japanese residences were covered by ADSL services.

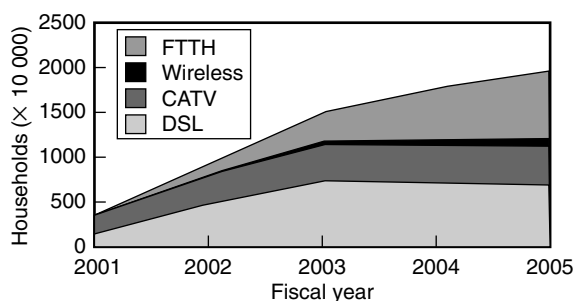
The Japanese Government, Tier 1 carrier companies, and electric power companies want to spread Fiber to the Home (FTTH) services in order to exploit their assets. However, FTTH services are currently more expensive and harder to install than the high-speed ADSL services. Therefore, consumers continue to choose ADSL services.

On the other hand, because enterprise customers want to reduce the cost of providing intranet access, they are starting to use FTTH services with VPN services instead of dedicated line services.

3.3 Public telephone services market

The Japanese telephone services market is worth about US\$ 5 billion.

The NTT Group had almost complete control of the market, but many NSPs and ISPs have now started public IP telephony services to win a share of this market. Although public IP telephony services have several problems (e.g., poor interconnections between carriers and poor emergency-call services), subscribers can call to anywhere in Japan at less than 7 US cents per



Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications.

Figure 1
Forecast of broadband users.

3 minutes. As a result, public IP telephony services are spreading much faster than expected.

3.4 Enterprise extension services market

Currently, there are few applications of enterprise extension services in Japan. This is mainly because Japanese companies use PBX (Private Branch eXchange) functions to execute their business operations. As a result, NSPs cannot provide appropriate extension services to customers. However, the innovation of IP Centrex/IP PBX can solve this issue. Also, extension services such as the FENICS IP Telephony Services can provide total extension services and reduce total costs.

In response, many Japanese companies have introduced extension services this year, and the Yano Research Institute and the Nomura Research Institute estimate that most companies will use IP telephony services by 2005 (**Figure 2**).^{3),4)}

4. FENICS IP Telephony Services

Fujitsu started providing enterprise extension outsourcing services early in 2003. This section describes the features of the FENICS IP Telephony Services.

4.1 Features

Customers can reduce their total costs and speed up their operations using the FENICS IP Telephony Services.

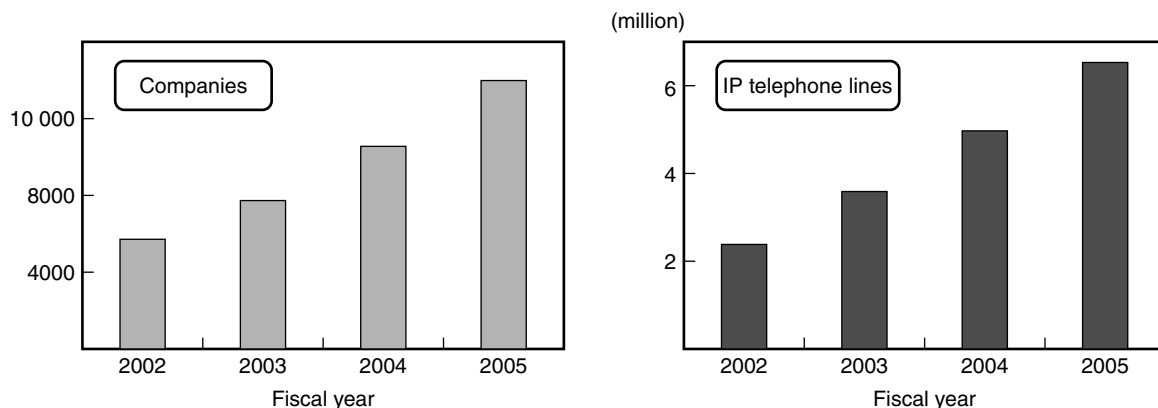
The FENICS IP Telephony Services can also be implemented partially. If customers want to exploit their existing PBX network, they can use the PSTN access functions of these services. Alternatively, if customers want to use the PBX network, they can use the services' extension service.

The most important feature of the FENICS IP Telephony Services is its ability to integrate telephony services into intranet and Internet Web services.

4.2 Telephone services

The FENICS IP Telephony Services provide many telephony benefits. For example:

- 1) Customers can use their private extension number plan.
- 2) End users can use their telephones in the same way as before.
- 3) Customers can exploit their existing PBX.
- 4) ADSL, FTTH, IP-VPN, and wide-area Ethernet are available.
- 5) High-level security (e.g., IPSec, VPN, and VoIP firewall, are included in the services).
- 6) High availability (e.g., 24-hour, 365-day



Source: Forecast information from IDC Japan, Nomura Research Institute, and Yano Research Institute.

Figure 2
Forecast of IP telephony market.

system management and maintenance).

- 7) Cheap rates (extensions, PSTN access, international calls, mobile phone calls).
- 8) A terminal adapter, gateway unit, and IP telephone unit are provided with the services (**Figure 3**).

5. Best practices

This section describes some best practices for using the FENICS IP Telephony Services.

5.1 Best practice 1 (PSTN access, extensions)

It is easy to adapt the PSTN access services.

- 1) Customers only need to connect an IP telephony terminal adapter or gateway to an existing PBX.
- 2) Customers can use the PSTN access services at a cheap rate.
- 3) Customers can reduce their PSTN costs dramatically.
- 4) Customers can replace an existing PBX with a full IP telephone unit.

5.2 Best practice 2 (Combination with @nifty phone service)

Very easy to set up. Customers only need to connect a full IP telephone unit to their LAN and enter an ID, password, and their telephone number.

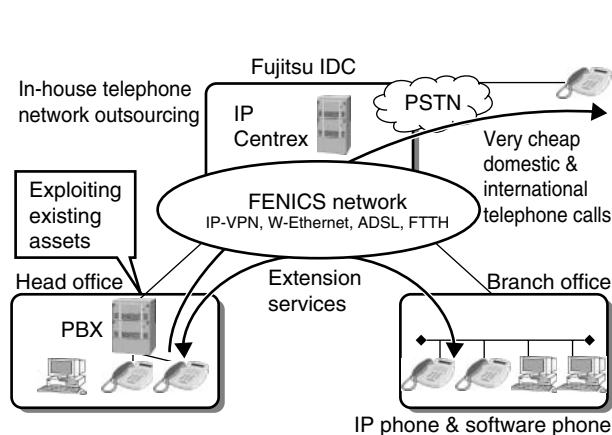


Figure 3
Overview of FENICS IP Telephony Services.

@nifty is one of Fujitsu's subsidiaries and is the biggest ISP in Japan. @nifty already has a large number of public IP telephone subscribers.

The FENICS IP Telephony Services provide a flat-rate call service in conjunction with @nifty phone.

FENICS enterprise customers and their customers, suppliers, partners, and employees that already subscribe to @nifty phone automatically receive the benefit of cheap, flat-rate access to the FENICS IP Telephony Services and therefore instantly reduce their telephony costs (**Figure 4**).

6. Combination with Internet/intranet services

The FENICS IP Telephony Services also provide an XML (Extensible Markup Language) based API (Application Program Interface) to Internet/intranet services. Internet/intranet services with telephone services are easy to develop, and Fujitsu can provide many different solutions (e.g., groupware, Web meeting, sales force automation, customer relationship management, and ERP). In doing so, Fujitsu is able to provide new solutions with IP telephone services to support and promote the customers' business.

This section describes an example of how Fujitsu can combine the FENICS IP Telephony Services with other services (**Figure 5**).

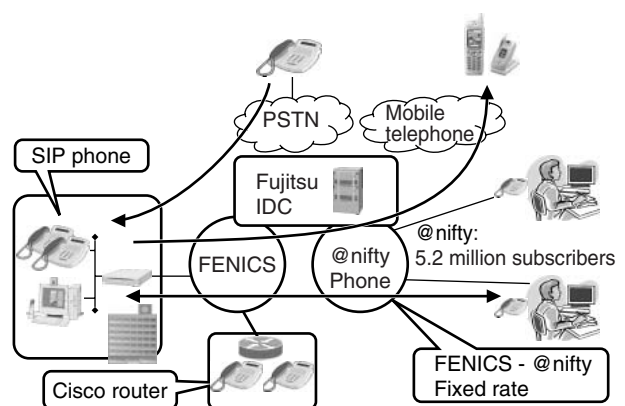


Figure 4
Combination of FENICS IP Telephony Services with other services.

Fujitsu provides a Web meeting service called JoinMeeting (**Figure 6**). This service has a special IP routing function and uses trans-codec technology. JoinMeeting can be used via any IP network simply by attaching a Web camera to a PC.

Subscribers to the FENICS IP Telephony Services can also participate in a JoinMeeting session using a simple “click to call” operation. This feature of the FENICS IP Telephony Services can speed up a meeting and knowledge sharing.

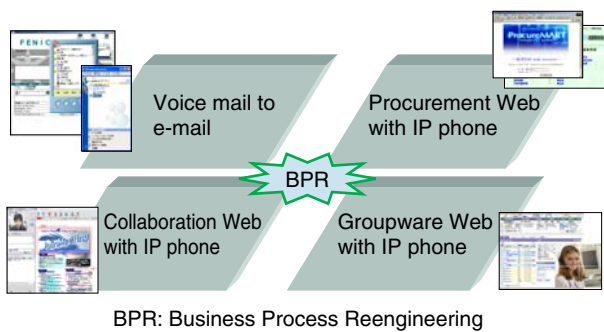


Figure 5
Combination of Internet and intranet services.

7. Conclusion

We are confident that the FENICS IP Telephony Services can support and enhance our customers' business. These services enable customers to reduce their total costs and speed up their operations so they can concentrate on their core business goals.

Fujitsu employs the latest IT technologies and products and has extensive knowledge and experience in providing outsourcing and network services.

We are proud to say that Fujitsu is one of the few global, total service providers that can provide full infrastructure solutions to customers' business infrastructure needs.

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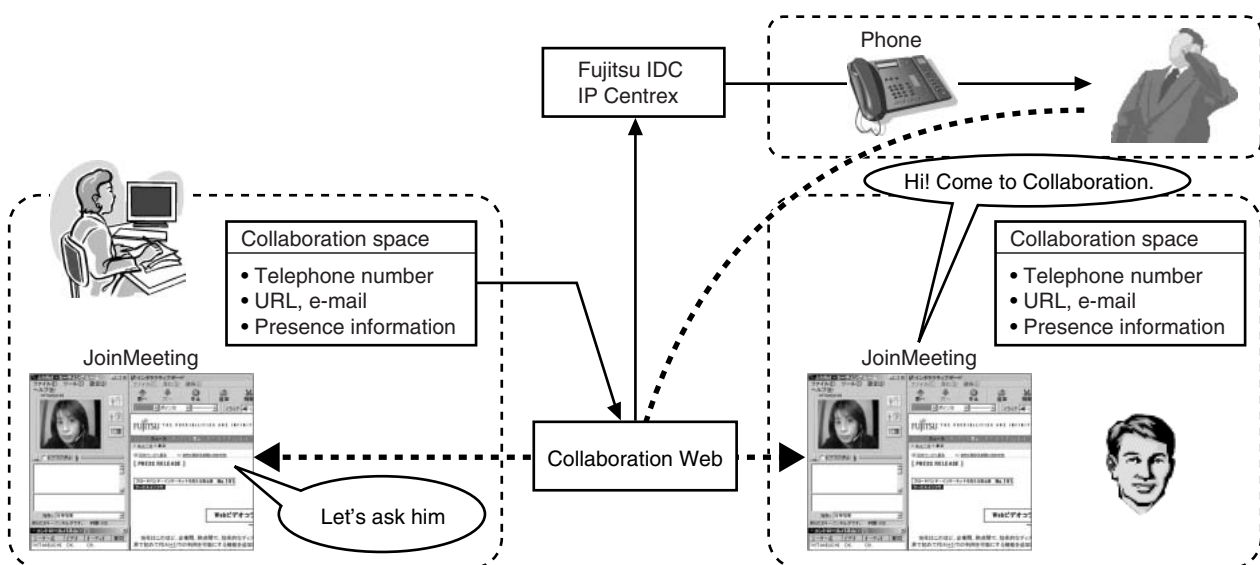


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Akihiro Okada received the B.S. degree in Electronics from Doshisha University, Kyoto, Japan in 1981. He joined Fujitsu Ltd., Kawasaki, Japan in 1981, where he has been engaged in network systems and services for network services business.