The Business of Intelligent Services Provision

1 Application Service Provider (ASP)

In the 1990s, advancing web technology was enable a number of application software (resp. systems) to be accessed and used over the Internet. As long as a user computer had been connected to the Internet, the user was able to login his/her user account registered in the *platform* which provides those *remote* software or systems. The tech firm maintaining such platforms was called *application service provider*. The software and systems leased for use are collectively named as *application services*.

1.1 Application services

Generally speaking, application services embrace a large number of services, ranging from simple *search service* to *enterprise information system*. Below lists a number of these online services.

1. Search service.

2. Email service.

3. News search.

4. Word processing, database management and file management.

5. Flight ticket booking, car rental and hotel room reservation service.

6. Stock price search and exchange rate search.

7. Information systems for accounting, human resource management (HRM), supply chain management (SCM) and customer relationship management (CRM).

8. Payment services.

9. Web hosting services.

10. Supplier search service.

1.2 Business application services

Clearly, these services were provided by multiple platforms. The ASPs in the 1990s were normally referred to those firms providing services mainly for use in business administration, instead of personal use.

1. Word processing, database management and file management.

2. Information systems for accounting, human resource management (HRM), supply chain management (SCM) and customer relationship management (CRM).
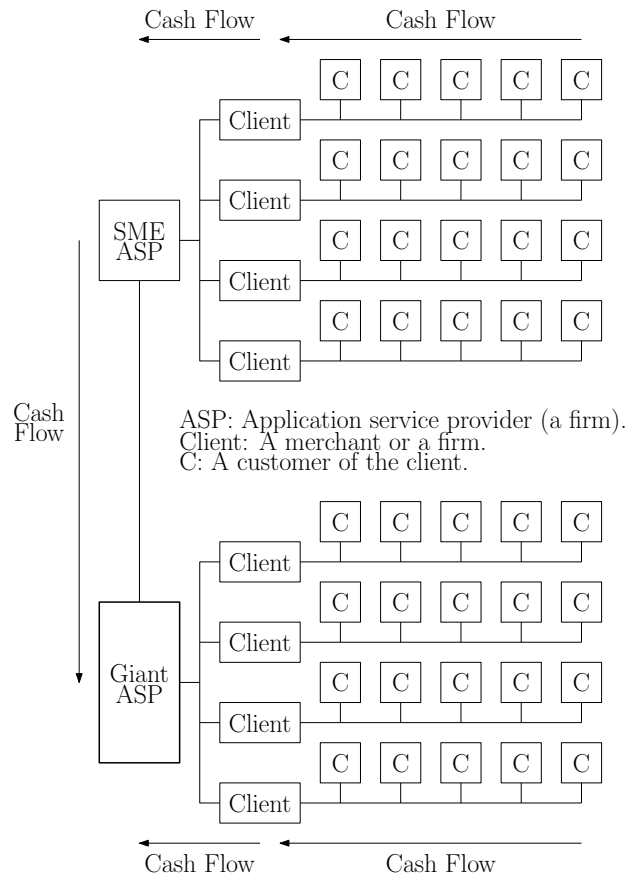
Figure 1: Typical (a) cash flow and (b) service flow in the 1990s application service provider (ASP) ecosystem. Application services included (i) memory space for data and file storage, (ii) application systems for administration (including documentation, accounting, finance and HR), (iii) supply chain management (SCM) systems, (iv) customer relationship management (CRM) systems, (v) competitive intelligent systems and others.

3. Payment services.

4. Web hosting services.

5. Supplier search service.

An advantage of using these online services is that a firm does not have to *maintain* multiple information systems in-house. Thus, a firm could focus more on her core competence.

1.3 Service supply chain

One point should be noted. Many small and medium size tech firms do not develop any core technology for those services. They simply license from other leading tech firms for those services. Clearly, giant ASPs, like SAP and IBM, played important roles in this service supply chain. After all, the business environment of the application services industry could be in analog to *franchising* or *authorized dealing*.

Figure 1 shows a simple picture for this service supply chain. An SME ASP licenses the technologies together with systems from a giant ASP to deliver application services to her clients. Normally, a client is a merchant or a firm. The client and her customers interact via the services provided by the ASP.

Let say, a customer A has placed an order for buying a book from the client X. The order information is entered and stored in the platform of the ASP Z. A staff of the client X is able to know the order information once the staff has login the platform. Then, the staff packs the book and delivers it via a 3PL to the customer A. If customer A has any comment about this transaction, he/she is able to enter the comment via the platform and let the staff of the client X to read and response.

Roughly speaking, the flow of the service starts from the giant ASP and ends in the customer A. The cash flow is in the reverse direction, starting from the customer A and ending in the giant ASP, as shown in Figure 1.

Question: Which party is profitable from this service supply?

2 Intelligent Service Provider (ISP)

As a lot more AI systems have been developed and launched, many AI tech firms have been founded and licensed their technologies for their clients or other tech firms. No wonder, the practise is similar to the practise of the 1990s ASP. Both of them provide application services for the clients. However, there are at least three key differences in them.

1. In the 1990s, the platform delivering the application services was constituted by *file servers*, *database servers* and many *application servers*. Today, the platform delivering the application services is supported by a *cloud*.

2. In the 1990s, the computational resource allocated for a client was fixed. If there is a sudden raise on the demand of resource, the platform is not flexible to make the change. Today, the computational resource allocated for a client is dynamic. It is a kind of on-demand basis.

3. In the 1990s, the application systems were not so intelligent. Today, many application systems have embedded with intelligent models in them. The system for customer support is an example.

In the Web 3.0 era, some application services could also be developed by integrating intelligent services and blockchain.

Cash Flow   Cash Flow

Client

Client

SME
ISP

Client

Client

ISP: Intelligent service provider (a firm).
Client: A merchant or a firm.
C: A customer of the client.

Cash
Flow

Client

Client

Giant
ISP
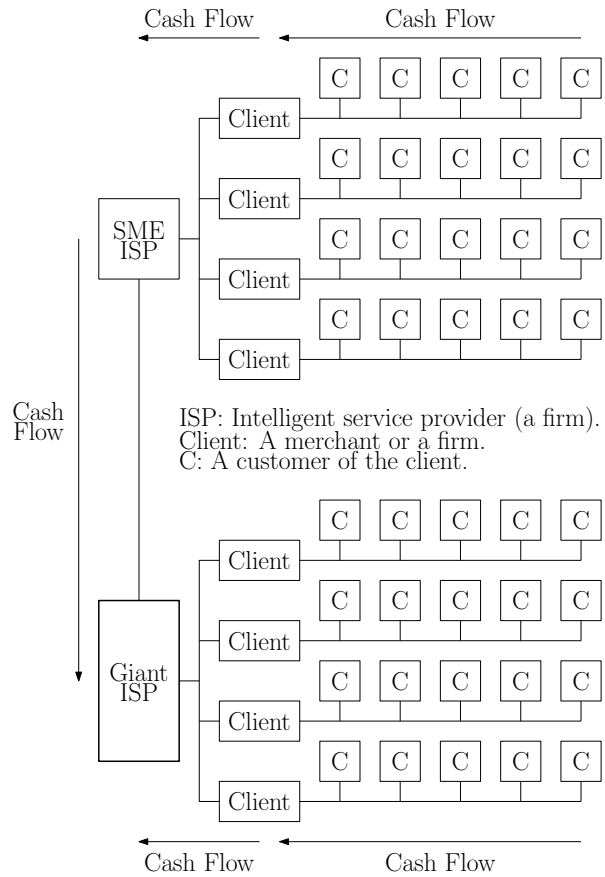
Client

Client

Cash Flow   Cash Flow

Figure 2: Typical (a) cash flow and (b) service flow in an intelligent service provider (ISP) ecosystem. Here, IFSP stands for information infrastructure service provider.
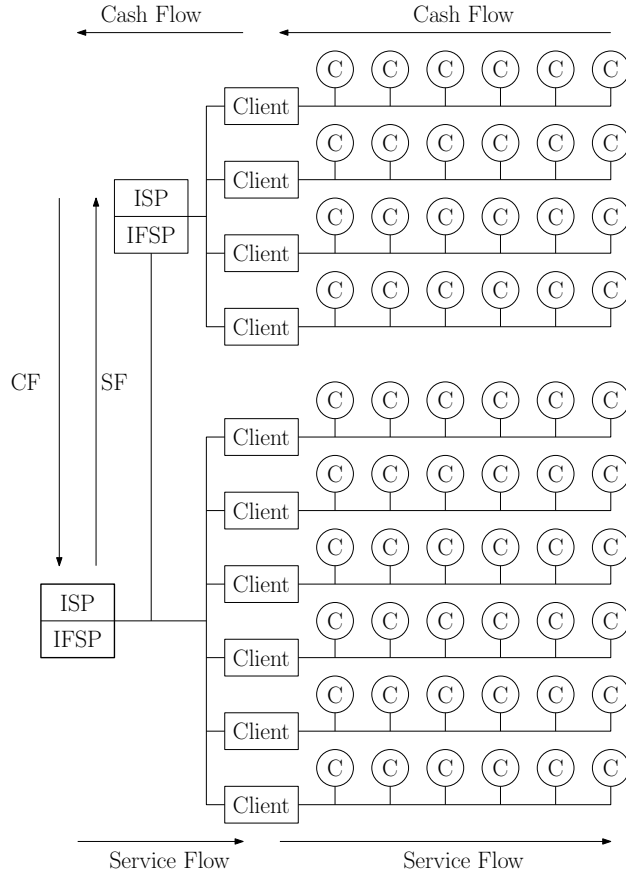
Figure 3: Typical *intelligent service supply chain*, in which the end users are *customers*. Here, IFSP stands for information infrastructure service provider.

2.1 Cash/Service flow

Figure 2 shows a typical (a) cash flow and (b) service flow in an intelligent service provider (ISP) ecosystem. Intelligent services included (i) memory space for data and file storage from the cloud, (ii) the intelligent services supported by the generative AI models and (iii) the intelligent services supported by other AI models.

Giant ISPs, like Google and Microsoft, play important roles in this service supply chain. On one side, they developed various intelligent services for use. On the other hand, they license the intelligent services for other tech firms to provide services locally. From the cash flow point of view, giant ISPs are the points of cash-in only. The cash is from their clients and the SME ISPs which license the intelligent services.

Question: What are the charges for the use of their intelligent services? What are the licensing fee, if any, for their intelligent technologies and services?

Question: Which party is profitable from this service supply?

2.2 Intelligent services for sales and marketing

Figure 3 shows a typical *intelligent service supply chain*, in which the end users are *customers*. Similar to that of the service supply chains manifested in the ASP network and ISP network, the giant intelligent service provider (ISP) and the information infrastructure provider (IFSP) play key

Cash Flow

Client
Client
Client
Client

ISP
IFSP

CF   SF

ISP
IFSP

Client
Client
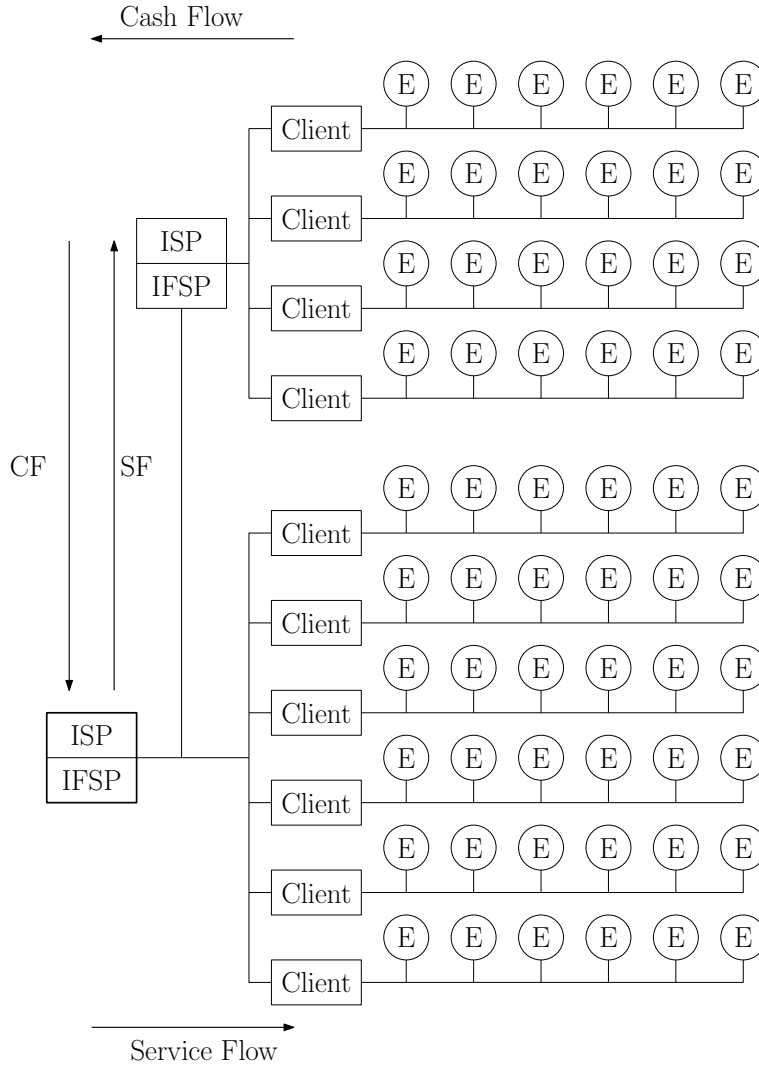Client
Client
Client
Client

Service Flow

Figure 4: Typical *intelligent service supply chain*, in which the end users are *employees*. Here, IFSP stands for information infrastructure service provider.

roles in the chain. As today intelligent service like ChatGPT requires to use a large amount of computational resource, many intelligent services have to be delivered based on a cloud platform. In this regard, many ISP and IFSP are indeed the same provider, like Google and Microsoft. They provide information infrastructures via their clouds. On their clouds, intelligent services are delivered as application softwares or simply APPs for the clients. If an client is a merchant, an customer of the merchant is able to get service support via the intelligent services together with the customer service provided by the merchant.

2.3 Intelligent services for business administration

Figure 4 shows a typical *intelligent service supply chain*, in which the end users are *employees*. The giant intelligent service provider (ISP) and the information infrastructure provider (IFSP) play key roles in the chain. As today intelligent service like ChatGPT requires to use a large amount of computational resource, many intelligent services have to be delivered based on a cloud platform. In this regard, many ISP and IFSP are indeed the same provider, like Google and Microsoft.

They provide information infrastructures via their clouds. On their clouds, intelligent services are delivered as application softwares or simply APPs for the employees in the clients.