|  |  |  |  |
| --- | --- | --- | --- |
|  | availability | interoperability | modifiability |
| layered  分层式 |  |  | Grouping services into functional layers reduces the impact of change. Most changes affect only the layer in which they're made, with few side-effects that impact other layers. This fundamentally simplifies service maintenance. |
| broker  代理 | A software may only be available on a particular computer. | There are physical and logical boundaries between processes or computers running on the same network. To make objects running on different processes or computers communicate across these boundaries, you have to deal with issues such as communication, coding, and security. | Usually, there is a need of having great flexibility, maintainability and changeability when developing applications. |
| MVC  控制器 |  |  | Product design flexibility is very small, it is difficult to meet the changing needs of users.  However, these models can be applied directly to the interface because the data returned by the model does not have any format. Once the model is changed, it is easy to modify. |
| pipe-filter  管式过滤器 |  |  |  |
| client-sever  客户端-服务器 |  |  | This means that if you need to modify the application code, you can modify it only on the server, instead of modifying thousands of client applications. |
| P2P  对等网络 |  |  |  |
| service-oriented  面向服务 | Applying this pattern requires creating a service inventory blueprint, a list of services with associated functionality. | Service-oriented architecture makes it easier for software components to communicate and cooperate over the network, without requiring any human interaction or changes in the underlying program, so that service candidates can be redesigned before their implementation. | A service presents a simple interface to the requester that abstracts away the underlying complexity acting as a black box, Further users can also access these independent services without any knowledge of their internal implementation. However, the black box itself is hard to modify. |
| publish-subscribe  发布-订阅 |  |  |  |
| share-data  数据共享 |  |  |  |
| multi-tier  多层架构 | The improvement of availability is limited.  (No significant impact) | Each layer can communicate and be deployed separately.  (No significant impact) | The development of the business is based on the component, so adding and deleting the new function is very convenient. Independent upgrades and changes can be made without affecting other layers. |
| map-reduce  分布式 |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | performance | security | testability | usability |
| layered |  |  | Each layer can be tested independently. |  |
| broker | Can use multiple CPU or a group of low-cost computers. | For security reasons, the parts of the software may be running in different segments.  Inherent networking complexities such as security concerns, partial failures, etc. |  |  |
| MVC | The efficiency of view accessing the model is very low. Depending on the operating interface of the model, the view may require multiple calls to obtain data. Unnecessary frequent access to the data that is not changed will also damage the performance. |  |  |  |
| pipe-filter |  |  |  |  |
| client-sever |  |  |  |  |
| P2P |  |  |  |  |
| service-oriented | Service-oriented architecture aims to allow users to combine large chunks of functionality to form applications which are built purely from existing services and combining them in an ad hoc manner. | There was a conflict between security and easy availability. | It is a black box for its consumers. So it may have influence on testability. | Different services can be used in conjunction to provide the functionality of a large software application. |
| publish-subscribe |  |  |  |  |
| share-data |  |  |  |  |
| multi-tier | Because many networks, computers and processes are running independently, once the system hardware and network bandwidth is poor, the performance of the whole system will be slow. | A better secure control of the whole system, we can implement different security policies for each layer, since business layer and data layer need higher security than view layer. We can put the high security layer behind the firewall protection. | Each layer can be tested independently. | In the web development field, three-tier is often used to refer to websites, commonly electronic commerce websites.  (No significant impact) |
| map-reduce | Programmers can easily complete large data parallel programming.  But if there is a conflict, it will bring additional communication overhead, reduce efficiency. |  |  |  |