Chapter 2 Problem Description

2.1 MMOG market situation

In the case of the recently popular massive multiplayer online games (MMOG) that service thousands of players with frequent interaction, what is needed is *reliable*, *scalable*, *secure*, *persistent* and *real-time* support. The MMOG sector creates the great part of online game revenue, especially in the Asia/Pacific region, which is the largest market around the world now. According to the IDC "Asia/Pacific Online Gaming" report [18], the Asia/Pacific online gaming market has continued to mature and grow over the past several years, commanding US$761.5 million in subscription revenue in 2003. This market is expected to grow at a compound annual growth rate (CAGR) of 19% to reach US$1.84 billion in subscription revenue in 2008, with the US$1 billion mark expected to be exceeded in 2005". Korea, the world's leading MMOG exporter, has launched hundreds of games in the last few years. The penetration rate of Korean products in the Asia/Pacific region is about 45%. The rapidly growing MMOG market signifies the importance of entertainment computing technologies.

MMOG revenue has seen such a rapid growth recently that traditional international game companies such as *Electronic Arts*, *Microsoft* and *Sony* have been forced to pay attention and act. Faced with such competition, game companies are realizing that time to market are among their most important issues. Game companies usually take much longer (2-3 years) to create and launch a MMOG than they do for a traditional single player game (9-12 months). An MMOG project can involve a major PC games studio in a five-year timetable and the effort of hundreds of people prior to release. For example, the Westwood Studio's "Earth & Beyond" MMOG appeared in 2003, but the blueprint stage for it began back in 1998. Unfortunately, Electronic Arts

decided to shut down this game on 11 September 2004, less than two years into operations, and focus resources on new games.

Like Westwood, most game vendors in the 90s were producing single player or matching games. We believe that the first essential for vendors wishing to switch to the MMOG market is to remedy the lack of distributed technologies and concepts. Korea made this switch at the end of the 90s and this led to the preeminent worldwide MMOG exporting position now. It is thus important for vendors in this competitive market to familiarize themselves with the issues of network and distributed technologies.

The second essential is to provide a good MMOG service. Shipping the MMOG marks the beginning of many possible problems for the vendor. Versioning (e.g., Bug fixing, add more contents… etc.) is one of them. Furthermore, most of these games now are client/server programs. Game companies can host the virtual world on dedicated servers and bandwidth, or be hosted by ISP's IDC (Internet Data Center) in chosen co-locations. MMOGs are serviced on a 7-24 basis, which makes service *reliability*, *availability*, *restorability*, and *scalability* very important. Once a game is in operation online, service providers must make the content attractive enough to induce users to stay with it. Thus, the development phase of the content is only just beginning: continuity and profit all depend on the quality of service and attractiveness of content.

Security is a critical aspect, because a MMOG service is just as vulnerable to hackers as is any other Internet service, for example from a Distributed Denial of Service (DDoS) attack. Fortunately, firewall and intrusion detection technologies can reduce the effects of most attacks. However, hacking of the content protocol is far more serious. In the Asia/Pacific region, the most common problem of the service is illegal plug-ins or cheat program in client. Users run an illegal plug-in (A.I. robot program is

one of them) or cheat program to play an MMOG for easy money or for experience points. This creates many problems, such as unfairness and lower quality of service for users and vendors. MMOG vendors trying to block these programs, but it is not a simple task. The culprits have the MMOG client program and so have the key to its protocol. It is nuisance that culprits recently become widespread, especially in China. The battle between hackers and vendors has become endless. Vendor cannot simply ignore this common phenomenon now. Regular players sensing any unfairness in a game will simply quit and thus adversely affect vendor profits.

2.2 The essentials of next generation MMOG middleware

To conquer the most problem encountered in MMOG market, we conclude MMOG producers have shown that they look for the following requirements:

Ease of development

Time to market is very important to the vendors. The platform should provide easier and faster ways of developing content, should hide the underlying network programming from the programmer and provide enough simple and flexible API for content developers, who should be allowed to focus on their speciality, which is content and presentation.

Ease of deployment

Most MMOG vendors frequently update their game content because doing so provides better, more attractive service. The middleware platform's architecture should provide both servers and clients with straightforward ways to deploy content, especially in collocation environments, in which all content must be updated remotely.

Ease of maintenance

Placing a MMOG online is only the beginning of the service challenge: easy maintenance and monitoring are subsequent requirements that vendors must heed to support and retain customers at low cost. For example, to ensure fairness in the virtual world, a tracker program that could automatically report uncommon changes in players' states would benefit game vendors.

Ease of Change

Many popular games encounter on the one hand security problems, such as from hackers attacking servers or protocols, and on the other service issues, such as unfairness or server overload. The battle between hackers and vendors is endless and one that vendors cannot ignore. For example, in our opinion, ease of change in protocol is a highly desirable feature in the middleware.
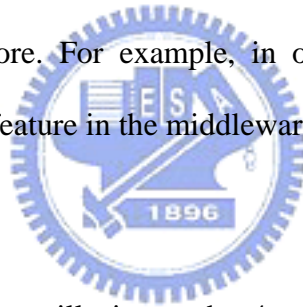
In conclusion, this dissertation will aim at the 4-ease, and try to build a MMOG platform to achieve 4-ease with high performance and scalability.