ProudNet
Server and Network Engine
Powerful in Real-Time Multiplaying
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<th><strong>CEO</strong></th>
<th>Hyunjik Bae</th>
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<td><strong>Incorporated Date</strong></td>
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<td><strong>Place of business</strong></td>
<td>24, Simin-daero 327beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do</td>
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Certificates and Patents
Certificates/Patents
Introduction to ProudNet
ProudNet can cope with various situations based on many experiences and is equipped with an interface for user friendliness. Therefore, it is a middleware that helps you to make a server easily without many experiences in on-line/mobile game development. As this is the result of the know-how on on-line game development accumulated from 1997, it can be effectively applied on the following areas.

- On-line/mobile games for smooth service in many countries
- On-line/mobile game sensitive to latency or traffic
- Developers who are not able to hire experienced server developers
- Game projects that have to be released in a short period

### Operating systems
- **Server:** Windows Server, Linux Server
- **Client:** Windows, Android, iOS, PS 4
- Multiplay among different types of clients is possible

### Supported development environment
- **Development tool:** Visual Studio, Xcode, Eclipse (Android Studio)
- **Game engine:** Unity 3D, Unreal Engine 3, 4, Cocos2d-x
- **Support language:** C++, C#, Java
- **Support DB:** MS SQL Server, MySQL
ProudNet, developed by Nettention, has been applied to 191 game projects up to now. Also, ProudNet live servers are in operation in 13 countries in the world.
Games using ProudNet

- Vindictus
- Marvel Future Fight
- Creature Academy
- Seven Knights
- Raven
- Street Fighter V
And 190 paid licensees and still counting!
Introduction to ProudNet

Proven performance and reliability in various countries and environments

- ProudNet based servers in operation in more than 13 countries
- Introduced by various genres such as MMORPG, FPS, action, sports, racing, etc.
- Used in mobile game areas such as Raven, Creature Academy, Seven Knights, etc.
- Used in on-line game areas such as Mabinogi Heroes, Hero Warz, S4 League, War of Mirrors, Closers, etc.
Introduction to ProudNet

Supports various platforms and languages

Proven performance & reliability

Development and Operation in Various Environments

High performance server

Function that adapts to network environment

WiFi Handover

P2P Function

Messaging

Database Cache

Server

C++, C#

Windows, Linux

Client

C++, C#, Java

Windows, Linux, iOS, Android, PS 4

Unity, Cocos2d-x, Unreal Engine 3, 4
Thread Pool that uses multi-core to the maximum

- It processes various events occurring simultaneously in parallel using thread pool.

- Thread Pool is divided into two uses; for internal networks and user callback, which can prevent network bottlenecks created by user mistakes.

- If you want, one thread pool can be used commonly or thread pool will not be used at all; flexible customizing is possible.
Use efficient I/O strategy

✓ I/O operation, which is much slower compared to internal calculation, must be performed more carefully and smartly.

✓ When performing multicasting, sometimes it is better to do routing using P2P information without the server performs transmission individually. In case of messaging, this feature can be selected for use.

✓ Data such as the location information of a gamer is valid only for the latest value. If the latest data and previous data exist in the Send Queue, it is advantageous to ignore the previous data and send the latest data. If the Unique ID feature of ProudNet is activated during messaging, it performs on its own internally by recognizing it.
Introduction to ProudNet

Other various efforts

✓ Minimum Kernel-User Mode switching

✓ Minimum System Call

✓ Minimum Memory Copying

Proven performance & reliability

Development and Operation in Various Environments

High performance server

Function that adapts to network environment

WiFi Handover

P2P Function

Messaging

Database Cache
It functions by considering the network environment

✓ Coalesce
   Even when sending the same amount of messages, if you send data collected simultaneously at once, instead of sending a little by little for many times, and apply Unique ID additionally, you can reduce network traffic.

✓ Fragmentation
   You may divide messages by considering MTU.

✓ Congestion control
   Excessive UDP communication causes congestions on the network from time to time.

✓ ProudNet is equipped with UDP congestion control function to prevent this.
It attempts re-connection promptly when switching to a new network with the network detection function within ProudNet. Even the messages sent when connection was lost are guaranteed to be transmitted when reconnected. P2P group information is also maintained and when reconnection to the server is completed, it automatically attempts hole punching. The developer may just think that the network stops temporarily for a short time.
Introduction to ProudNet

Powerful P2P transmission feature

✓ When P2P is well used, load to the server can be reduced and responsiveness of games can be increased.

✓ However, implementing a reliable P2P directly is very hard.

✓ ProudNet supports an easy-to-use and powerful P2P Function.

✓ P2P function of ProudNet operates reliably based on many experiences.

✓ P2P can be used for server-to-server communication.

✓ Superpeer can be selected and utilized.
The success rate of P2P hole punching of ProudNet is relatively very high. To pass NAT, it tries many attempts from various angles.

✓ It boasts high hole punching maintaining rate by preventing evaporation of port mapping info of NAT.

✓ If it failed in hole punching or the environment is not suitable, it operates as relay through the server.

✓ The above features all operate on the background, so users do not have to pay attention to these.
When P2P Group is established, the user messaging is first processed as a relay and attempts hole punching internally.

If hole punching is successful, it directly performs messaging afterwards.

Therefore, users can do P2P communication directly afterwards, without having to wait after establishing P2P group. It is because relay/hole punching switching is possible internally on its own.
✓ Have you ever written a large amount of switch-case statements to determine which message you just received? RMI of ProudNet can solve the tedium.

✓ If you define a message with PIDL and compile it, a code that transmits (proxy) and receives (stub) is generated. Users can include it and register it in the server (or client) object and send messages, as if they are calling functions.
When exchanging important data, encryption is a must. In ProudNet, we offer two major encryption methods.

- Faster but weak encryption: Security is reduced but encryption/decryption speed is very fast.
- Strong but slow encryption: Crecible AES algorithm is used.

In some cases, it may be more beneficial to reduce traffic by compressing the message even if the server load is increased. In ProudNet, it offers easy-to-use compression features.
DB access is one of the causes of bottlenecks and very difficult to process. However, game servers have high frequency of DB access in general. (Player level up, item acquisition, etc.)

ProudNet provides DB cache system to solve such problems. The game server can perform its true role more effectively by delegating DB related tasks to DB cache.
Thank You