

## Benchmark of ICE iPush<sup>®</sup> Communication Server V2 Massive Connection Messaging

By: ICE Technology Corp., June 21, 2005

Ver.: 1.1

### 1. Server Host Spec. (Machine A)

Model: IBM M51 Series (8143I1V)

- ❖ CPU: Intel Pentium 4 (3.0 GHz) X 1 / Hyper-Threading enabled
- ❖ RAM: 1 GB (DDR400)
- ❖ NIC: 1 Gbps
- ❖ HD: 160GB / 7200RPM (IDE)
- ❖ OS: Windows 2000 Server
- ❖ iPush: iPush Server V2.1 Build105 Standalone for Windows

### 2. Client Hosts Spec. (Machine B & Machine C)

	Machine B	Machine C
CPU	Intel Pentium 4 (3.0 GHz) X 1 / Hyper-Threading enabled	Intel Pentium M (1.6 GHz) X 1
RAM	768 MB	1 GB
NIC	1 Gbps	1 Gbps
OS	Windows XP Professional	Windows XP Professional
API	iPush V2 DLL	iPush V2 DLL

- ❖ Two client hosts simulated total 3000 concurrent subscribers.

### **3. Benchmark Scenario 1**

#### **For Server**

- ❖ 5 publishers run on Machine A.
- ❖ Each publisher sends 10 messages per second with individual subject (like publisher P1 sends messages with subject S1, P2 with S2, P3 with S3, P4 with S4, and P5 with S5).
- ❖ Each message size is 1000 bytes.

#### **For Clients**

- ❖ 3000 concurrent connections simultaneously login from Machine B and Machine C as subscribers (1500 for Machine B and 1500 for Machine C).
- ❖ Each connection subscribes 1 subject.

#### **Observation**

- ❖ If message dropped in iPush Server system.
- ❖ Record CPU utilization of Server and Client hosts.
- ❖ Record RAM utilization of Server and Client hosts.
- ❖ Record Network utilization of Client hosts (but not shown in Windows 2000 Server).

#### 4. Benchmark Result 1

❖ CPU usage

	Machine A	Machine B	Machine C
Avg. CPU Usage	<b>50 %</b>	70 %	70 %

- None message dropped by iPush Server
- Total message throughput: **30,000 msg/sec.**

❖ RAM usage

	Machine A	Machine B	Machine C
Avg. Memory Usage	<b>287,960 KB</b>	45,720 KB	45,720 KB

❖ Network usage

	Machine A	Machine B	Machine C
Avg. Network Usage	<b>26 % (calculated)</b>	13 %	13 %

## 5. Benchmark Scenario 2

### For Server

- ❖ 5 publishers run on Machine A.
- ❖ Each publisher sends 35 messages per second with individual subject (like publisher P1 sends messages with subject S1, P2 with S2, P3 with S3, P4 with S4, and P5 with S5).
- ❖ Each message size is 100 bytes.

### For Clients

- ❖ 3000 concurrent connections simultaneously login from Machine B and Machine C as subscribers (500 for Machine B and 2500 for Machine C).
- ❖ Each connection subscribes 1 subject.

### Observation

- ❖ If message dropped in iPush Server system.
- ❖ Record CPU utilization of Server and Client hosts.
- ❖ Record RAM utilization of Server and Client hosts.
- ❖ Record Network utilization of Client hosts (but not shown in Windows 2000 Server).

## 6. Benchmark Result 2

### ❖ CPU usage

	Machine A	Machine B	Machine C
Avg. CPU Usage	45 %	40 %	80 %

- None message dropped by iPush Server
- Total message throughput: **105,000** msg/sec.

### ❖ RAM usage

	Machine A	Machine B	Machine C
Avg. Memory Usage	342,172 KB	15,240 KB	76,200 KB

### ❖ Network usage

	Machine A	Machine B	Machine C
Avg. Network Usage	13 % (calculated)	2 %	11 %

## 7. More Benchmark Explanations

- ❖ From these two benchmark experiments, we learned the limitation of massive connection messaging capability of iPush Server under short message size (less than 1 KB here) and low frequency (not higher than 35 msg/sec. here) was not reached. It may be experimented with more client hosts under gigabits network environment.