

Enabling 3S applications real-time capabilities by integrating MOM technology

The first step to move toward the 4th generation GIS

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Outlines

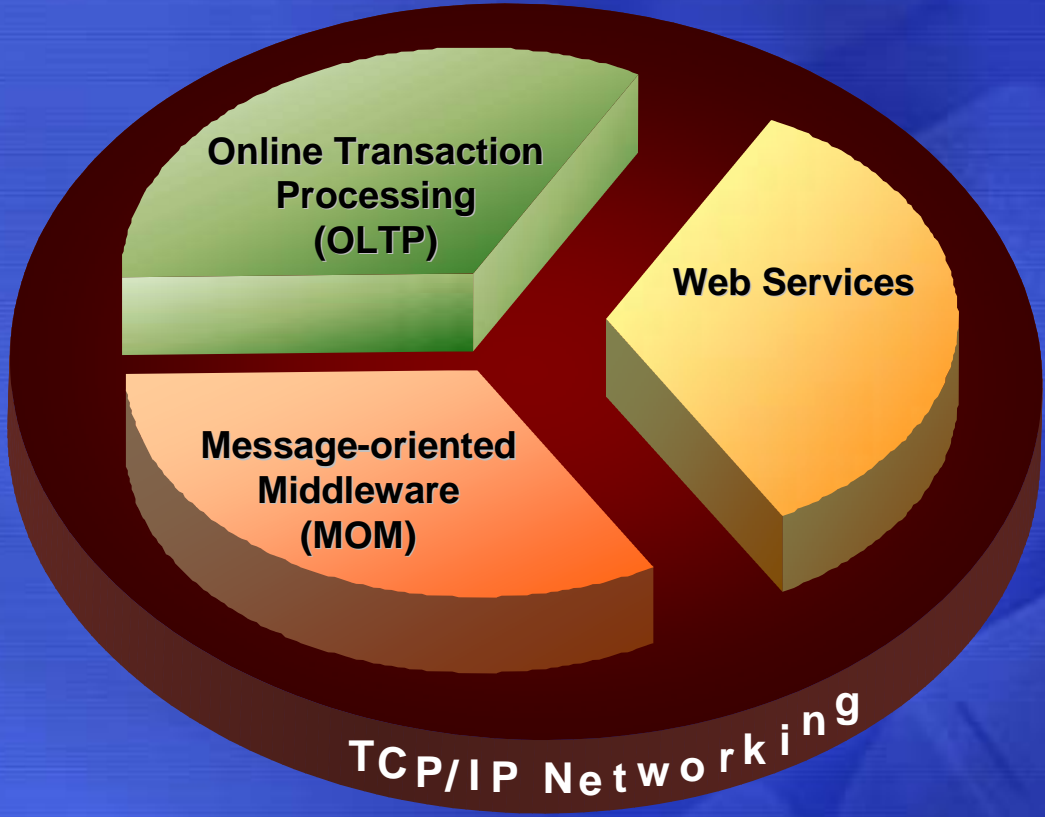
- What we see from the 4th generation GIS
- Introducing real-time MOM
- Enabling 3S applications real-time capabilities with MOM technology
- Be Real-time Now!

What we see from the 4th generation GIS

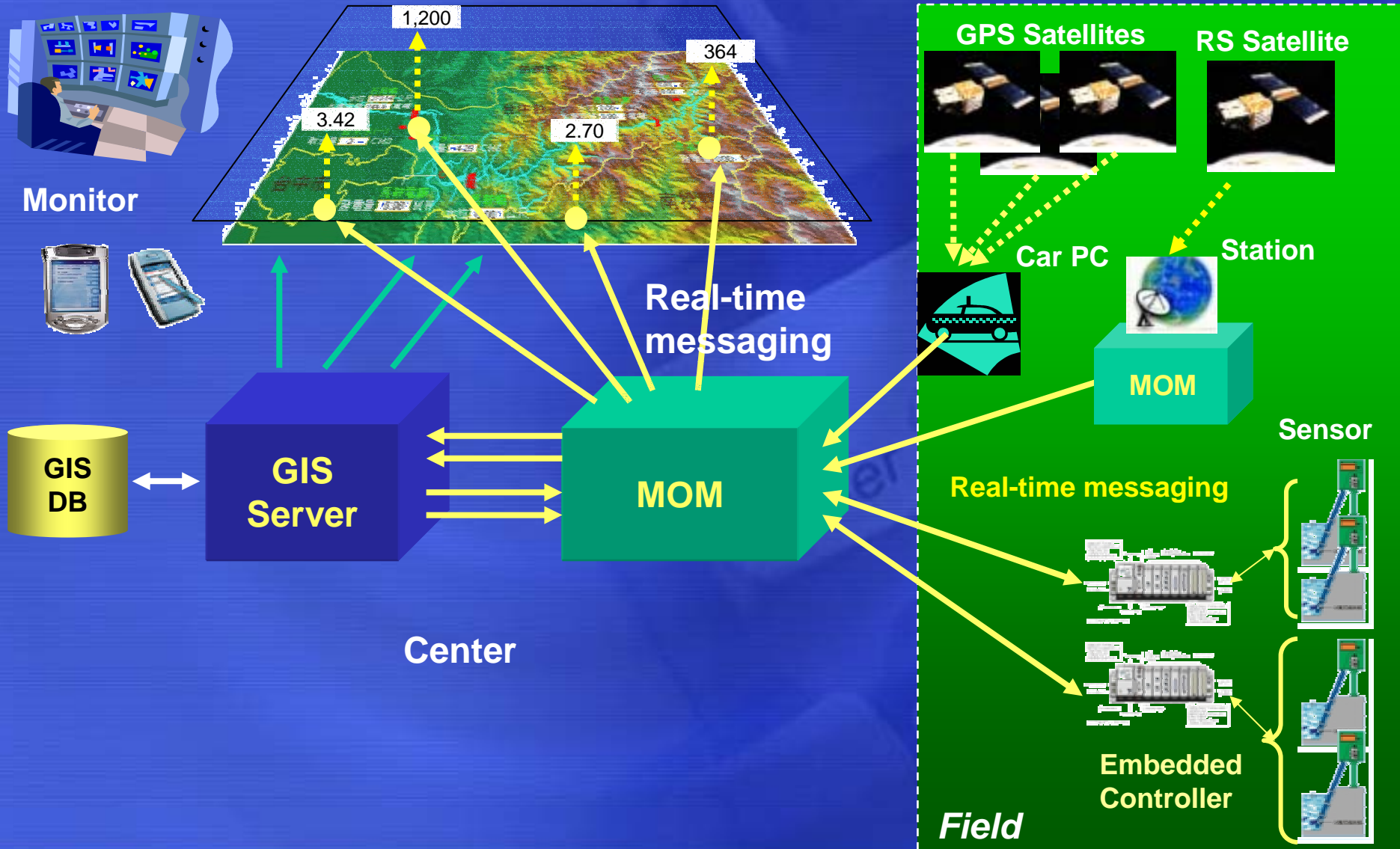
Key Features of 4th Generation GIS

- Data-centric
- Dynamic Data Flowing from RS, GPS and other sources
- Data Sharing for interested subscribers
- Interoperability between GIS
- Integration with other software systems
- Distributed Computing
- Data Warehousing
- 3D Spatial Modeling

Key Software Technologies for the 4th generation GIS

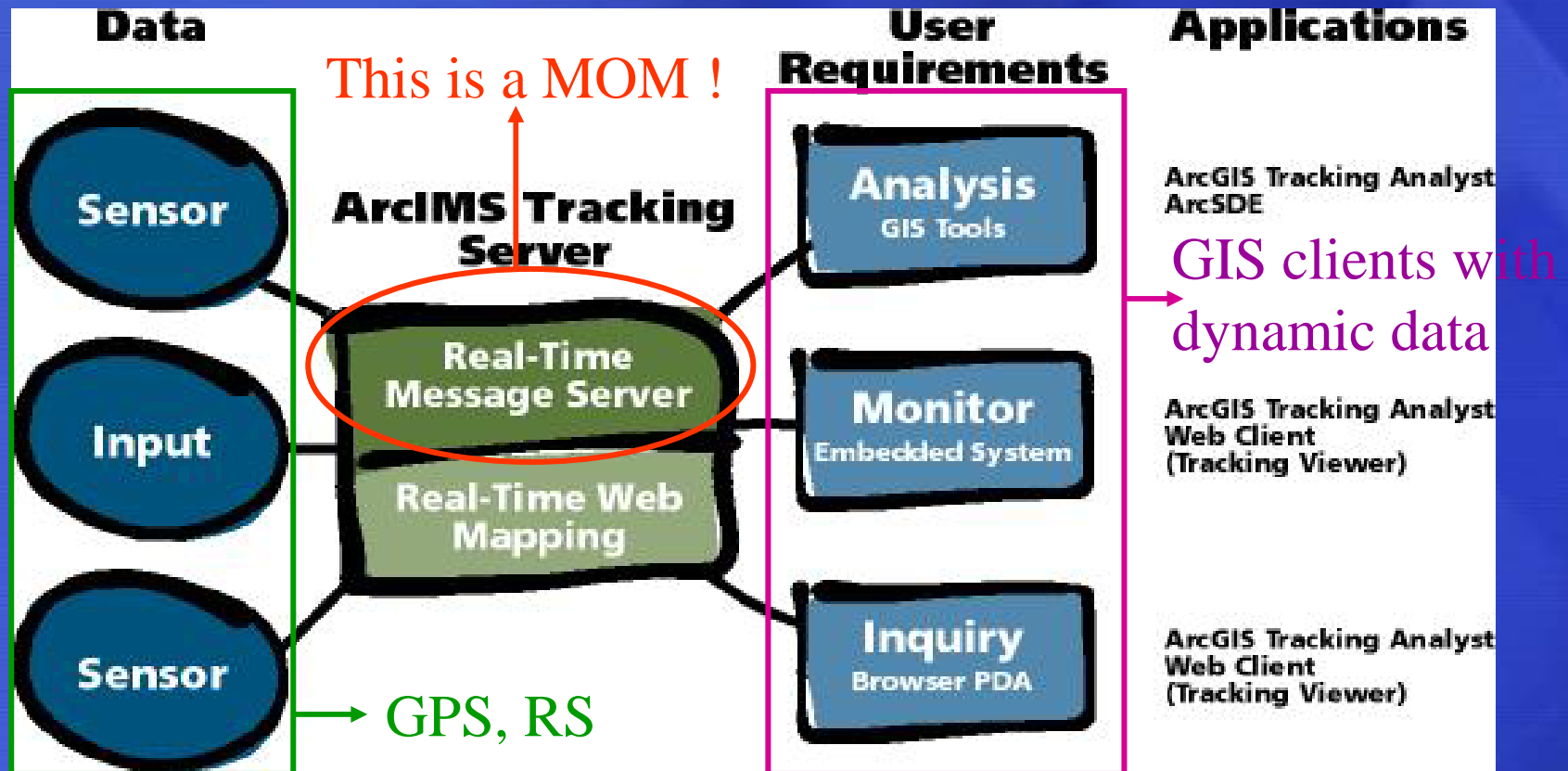


3S Dancing Together



Integrating real-time messaging into 3S applications

- Take ESRI® ArcIMS® Tracking Server for example:



Introducing real-time MOM (Message-oriented Middleware)

ICE – The Massive Connection MOM Leader

- ICE Tech.– The only MOM vendor in Asia
- ICE focuses on
 - Providing high performance messaging middleware;
 - Promoting real-time system architecture with MOM;
 - Popularizing loosely-coupled, message-driven programming model.

- Message-oriented Middleware
 - Increases the interoperability, portability, and flexibility of an application.
 - Reduces development complexity.
 - Allows the application to be distributed over heterogeneous platforms.
 - Is most appropriate for message-driven applications.

More about MOM

- MOM gives you
 - Real-time messaging,
 - Message-oriented computing,
 - Asynchronous cooperative,
 - Loosely-coupled programming model.

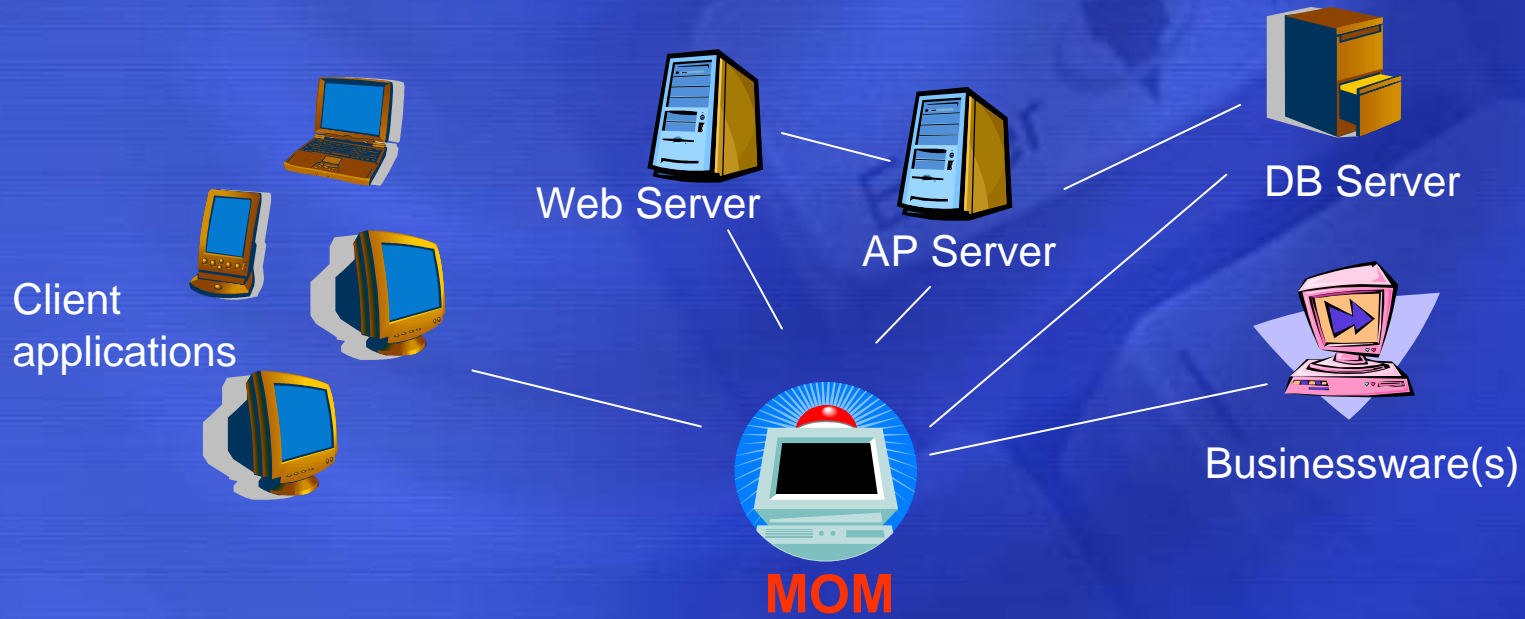
DB vs. MOM

- Database

- Data repository
- Suitable for data query
- Centric server

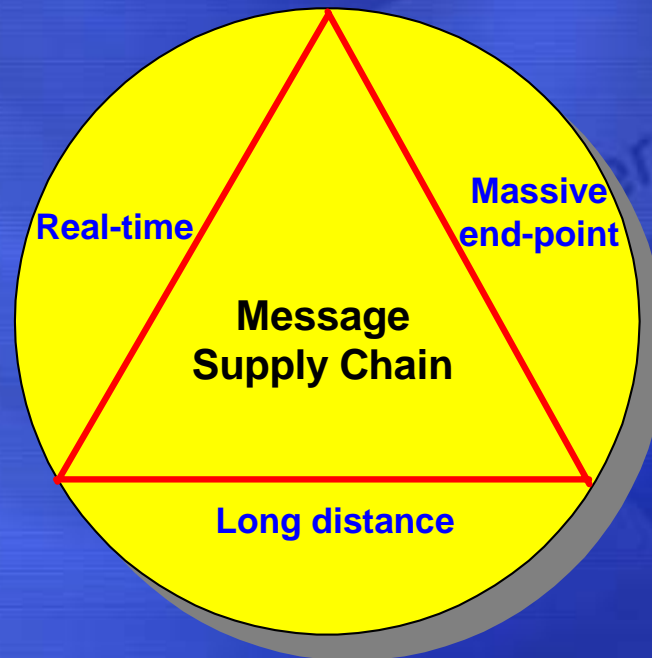
- MOM

- Data highway
- Suitable for data exchange
- Distributed architecture



Form a Message Supply Chain for 3S

- **The 3 key reasons for 3S wanting Message Supply Chain**
 - Real-time data aggregation & delivery
 - Long distance network linkage
 - Massive end-point connections



❖ Massive Scalability and Performance

- iPush[®] Server is not only the data traffic handler, it's also proved to be a massive scalable communication server with thousands concurrent client connections. Its stackable system architecture allows high scalability with advanced load-balancing mechanism

❖ Real-Time Communication

- iPush[®] Server can dispatch information to thousands of receivers simultaneously, all the critical information is sent out instantly in milliseconds.

❖ **Guaranteed Delivery**

- Guaranteed message delivery is achieved by marking "Persistent" on each published message to make it delivered once-and-only-once. In other words, a message would never get lost even if the iPush[®] server crashes; message is re-delivered after the server recovered.

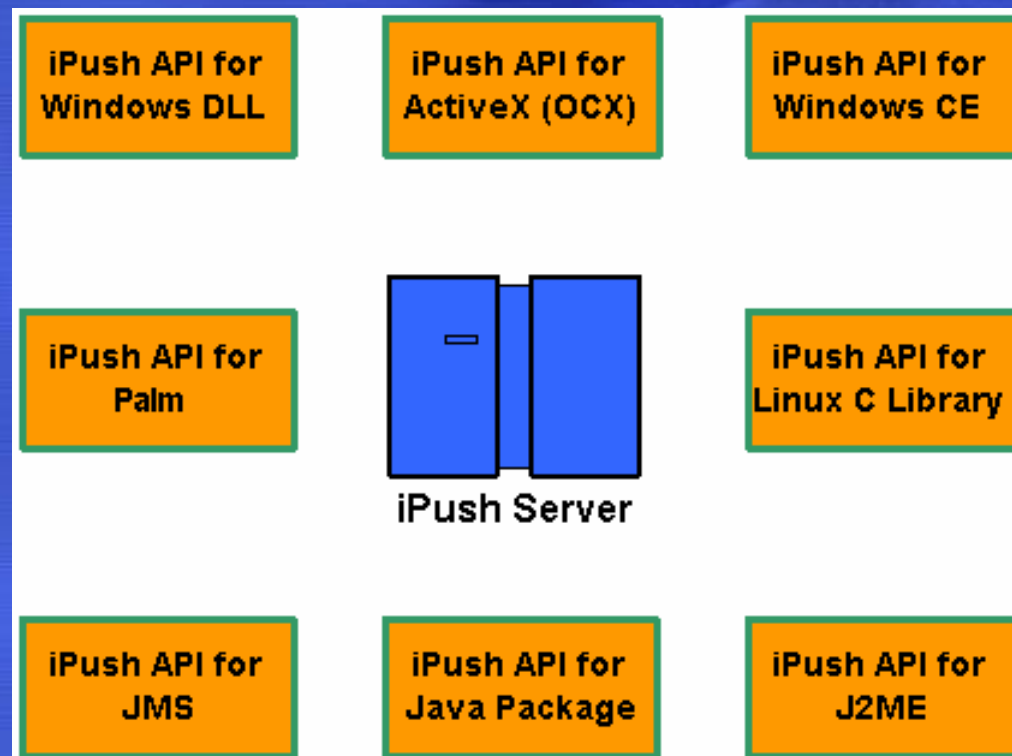
❖ **High Availability**

- An iPush[®] Server cluster can detect lost connections and support fail over facility to make sure that the system continues for service.

The most powerful MOM in the markets – ICE iPush[®] Communication Server

❖ Wide Range Accessibility

- From Unix server to mobile device, iPush[®] Server comes with numbers of APIs for different platforms to get on-line with the middleware.



❖ Security

- iPush[®] Server provides user authentication, pub/sub authorization and real-time message encryption to secure your data.

❖ Content-Independent

- iPush[®] Server deliver messages of all kinds of formats. It is an ideal tool for users to exchange hundreds and thousands kinds of data to others

The most powerful MOM in the markets – ICE iPush[®] Communication Server

❖ More about Content-Independent

Message Format	Access Interface	Example
Text file	File system	.txt, .ini, .csv, .java, .html, .pl, .jsp, .asp
Binary file	File system	.exe, .com, .class, .ocx, .doc, .xls, .ppt, .jpg, .gif, .bmp, .wav, .avi, .mp3, .jar, .pdf, .mdb
String	Code in program User input	"Hello World!", "0xAB3372B3CFD9" text, binary, or hexadecimal,
Binary stream	COM port Ethernet	"Hello World!" text or binary
Table - Column	Database	All data types of DBMS

Table 1. Message formats for iPush Server delivering

❖ Multiple Message Models Supported

- iPush[®] Server supports both Publish-and-Subscribe (Pub/Sub) and Point-to-Point (P2P) message models.

❖ Industry Standard (JMS) Supported

- In order to communicate and deliver information across various systems and organizations, iPush[®] Server has supported JMS, the standard API spec. for exchanging information in J2EE.

What does ICE provide for 3S applications?

- **Products**

- iPush Server / iPush Embedded for messaging platform
- iPush client APIs for real-time 3S application development

- **Services**

- Consultancy
- Technical support
- Training
- Implementation
- Maintenance

- **Partnership with**

- GIS/GPS/RS vendors
- Embedded controller vendors
- System Integrators
- Independent software vendors
- Industrial solution providers

Enabling 3S applications real-time capabilities with MOM Technology®

Applying MOM Technology to 3S Applications

- **iPush Embedded for PC-based PLC Controller: WinCon-8000**

by ICPDAS Co., LTD with iPush®



- **Real-time River Flow Data Acquisition and Monitor System (GIS + RS)**

by GeoStar with iPush® Server



Applying MOM Technology to 3S Applications

- Real-time Underground Pipelines Information System (GIS + RS)

by GeoStar with iPush® Server



- Real-time Air Quality Data Acquisition and Monitor System (GIS + RS)

by LITAG Engineering Consultants, Inc. with iPush® Server



Applying MOM Technology to 3S Applications

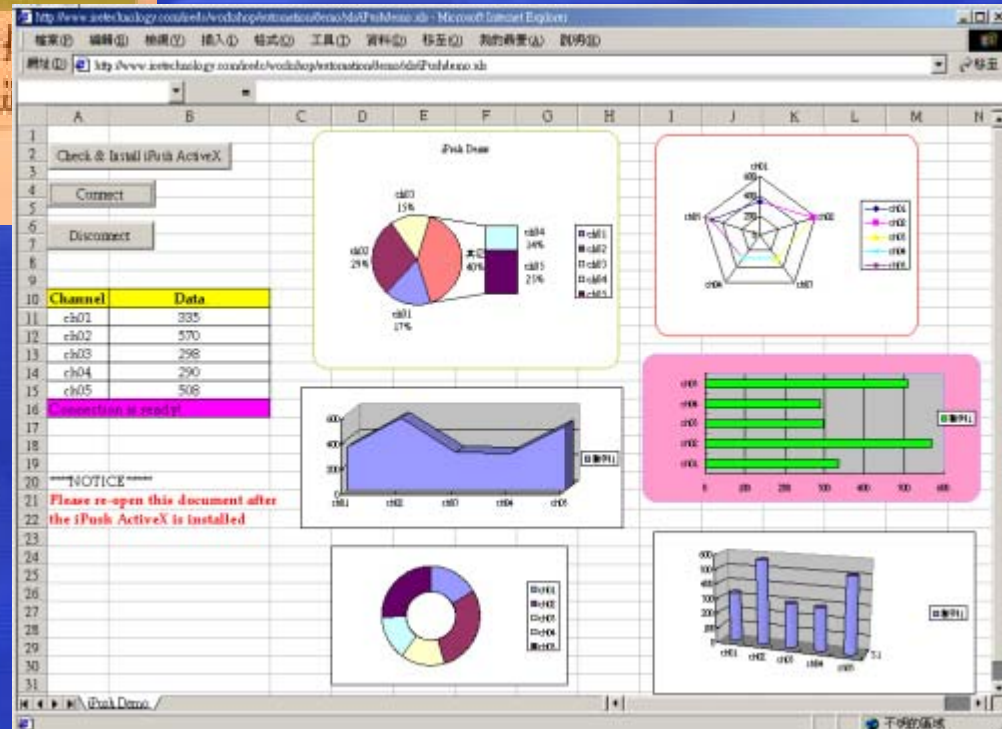
- Policy & Fire Brigade Detaching and Monitor System (GIS + GPS)

by Hitron Technologies Inc. with iPush® Server



- Real-time Data Monitor & Statistics

by Excel with iPush® Server



The Benefits of Integrating MOM with 3S

- ❖ Making 3S true real-time
- ❖ Enabling a dynamic data flow in 3S system.
- ❖ Improving data exchanging performance (by Turning DB-centric to Message-centric)
- ❖ Pushing data/instance proactively
- ❖ Giving more robustness in 3S information system architecture.
- ❖ Providing higher interoperability between different GISs.
- ❖ Reducing complexity of integration between GIS and MISs.

Be Real-time Now!

• ICE Developer Center

<http://www.icetechnology.com/icedc>

The only one real-time messaging community in Asia



ICE Technology Corp. / ICE DC / Download - Microsoft Internet Explorer

http://www.icetechnology.com/icedc/download.jsp

ICE TECHNOLOGY Massive Connection MOM Leadership

ICE M2M Power (iPush Server for ITB, e-Automation)

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- ◆ From install to test the ICE iPush® Communication Server, you need only 30 minutes:
 1. After obtained the trial License Key, select iPush Server V1.5 for Windows 2000 Family to process installation (download setup.exe & iPush_Installation_Guide.pdf).
 2. Download Getting_Started.pdf, and read it first.
 3. Download DLL.zip (Client API & Sample Codes), unzip the file and execute the VC\TestMsgAgent.exe, and follow the guideline from Getting_Started.pdf to test the Publish / Subscribe mode.
- ◆ ICE iPush® Communication Server Version 1.5
for Windows 2000 Family installation

File	Description
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❖ Download

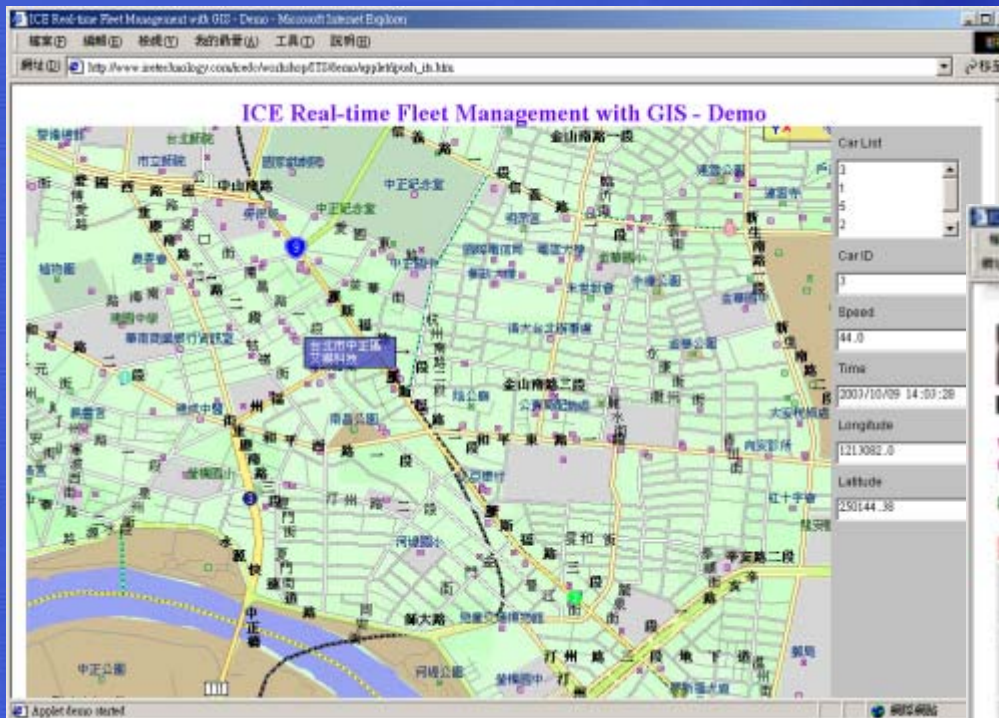
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❖ Web support

Be Real-time Now!

• On-line Workshop

<http://www.icetechnology.com/icedc/workshop.shtml>



❖ On-line demos

❖ Step-by-step tutorial



Thanks for your time.

Enjoy the lunch. 😊