

# iPush Embedded First Look

**Jiun-Lin Chen Ph.D.**

**CTO**

**ICE Technology Corp.**

# Topic Part I

## ❖ iPush Embedded Introduction

- ◆ What is iPush Embedded
- ◆ iPush Embedded Design Goal
- ◆ Feature
- ◆ Pub/Sub Messaging Exchange
- ◆ iPush Embedded for Industry

## ❖ Installation

- ◆ IOModule
- ◆ Remote Administration

- ❖ Installation
- ❖ DEMO
- ❖ Resource
- ❖ Q & A

# What is iPush<sup>®</sup> Embedded ?

**iPush<sup>®</sup> Embedded is Developed by ICE Technology. It's a real-time Message- Oriented-Middleware (MOM) Design for Embedded System. iPush<sup>®</sup> Embedded not only support TCP/IP commutation protocol, but also have Active and Real-Time Mass Transmission ability. Can Transmit Field data to Remote Application in real time. Provide a perfect solution for controller to do real-time remote Factory Automation.**

# iPush Embedded Design Goal

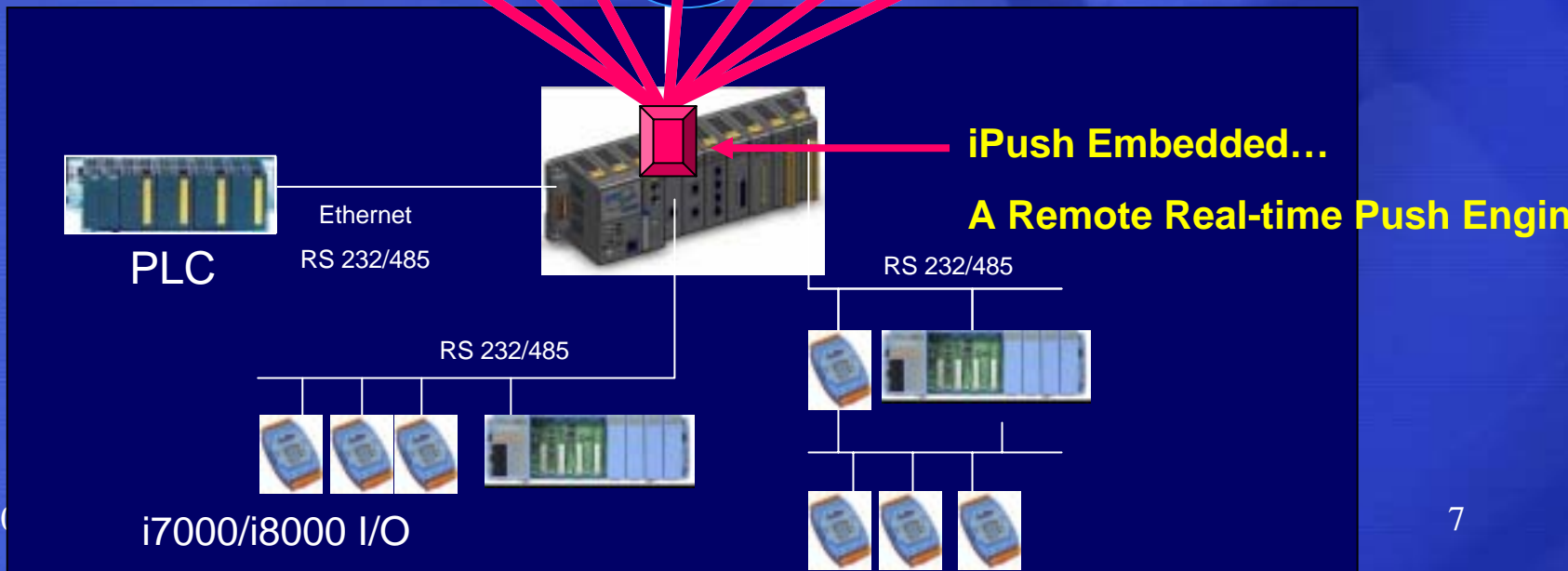
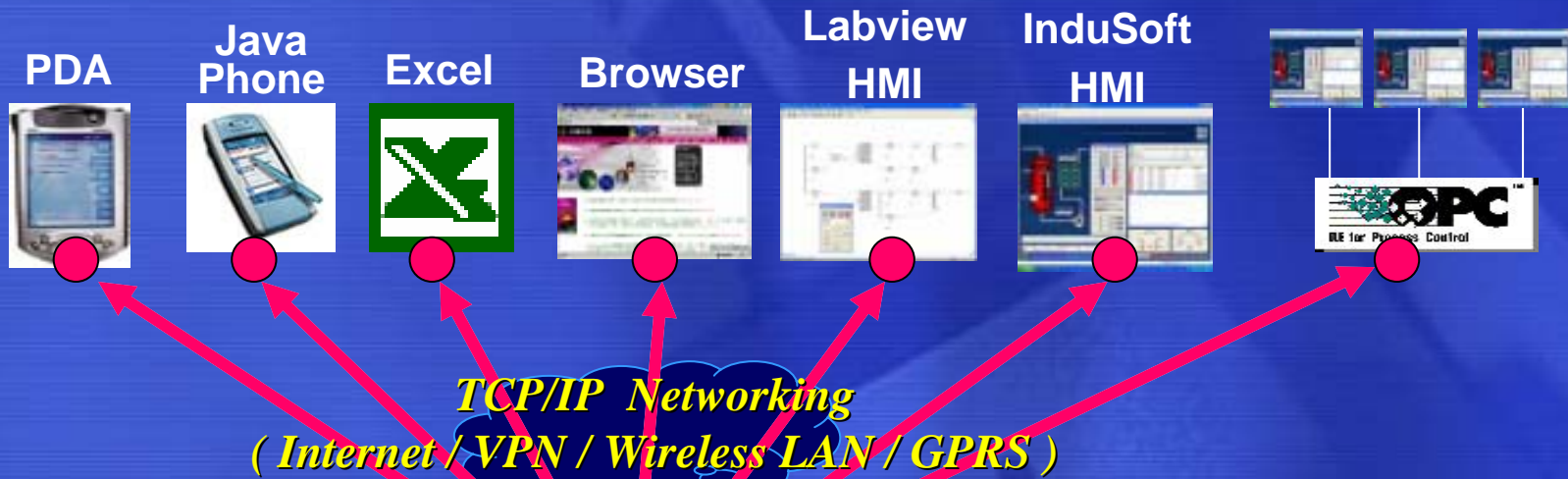
# Design Goal

## ❖ Design for Embedded System

## ❖ Design Goal

- ◆ Let Embedded System Become **Active Information Nodes**.
- ◆ Provide ActiveX, Windows API, Java Class, Linux DLLs ...etc Client Object for Use
- ◆ Secure Data Transmission
- ◆ Remote Management
- ◆ Support Windows CE.NET

→ Provide **Remote / Real-Time / Active Push Engine**



# Main Features

## Active Push

iPush® Embedded adopts the message-driven mechanism. That is, when receiving a message from the I/O modules, iPush® Embedded will automatically push the data to subscribers, with no pulling efforts by request.

## Bi-directional Real-Time Communication

iPush® Embedded can immediately send a message to the subscribers. The subscribers that receive messages are also able to send control commands to the I/O modules (within milliseconds).

## Internet Accessibility

User can use Internet to do remote data acquisition. Order to get disturbed collection, and centralized monitoring ability

## Massive Messaging

iPush® Embedded is able to send a great amount of data (including meters, status and alerts) that are received from the I/O modules.

## Wide Range Accessibility

iPush® Embedded can be accessed easily by a variety of remote devices, such as PC, Pocket PC and mobile phone.

## Massive Connection

iPush® Server can be installed to manage the massive connection of WinCon-8000s group.

## Security Mechanism

Provide System authentication, permission and Encryption Mechanism.

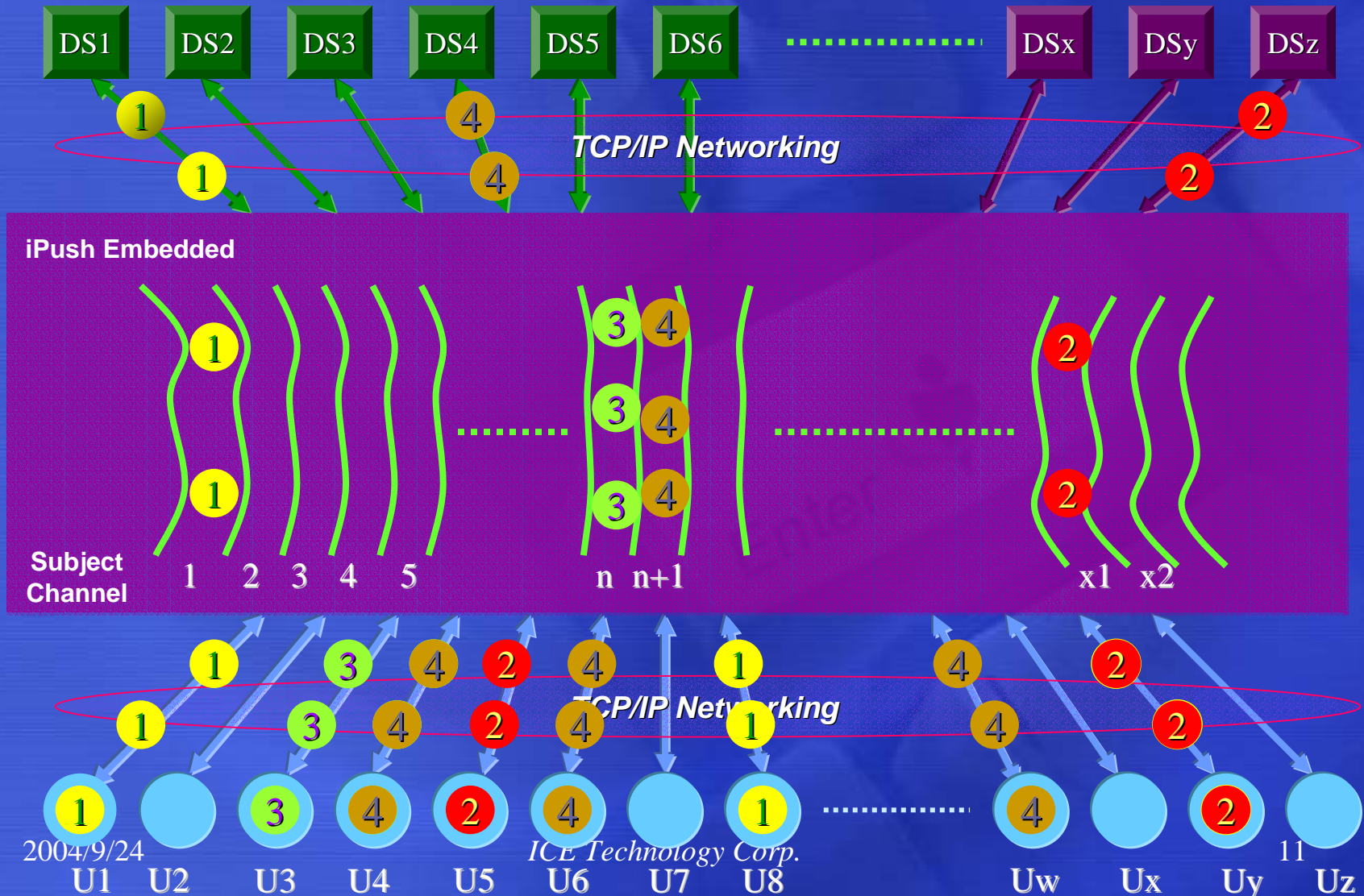


# Pub / Sub Message Exchange

## Real-Time Publish and Subscribe ( Pub / Sub )

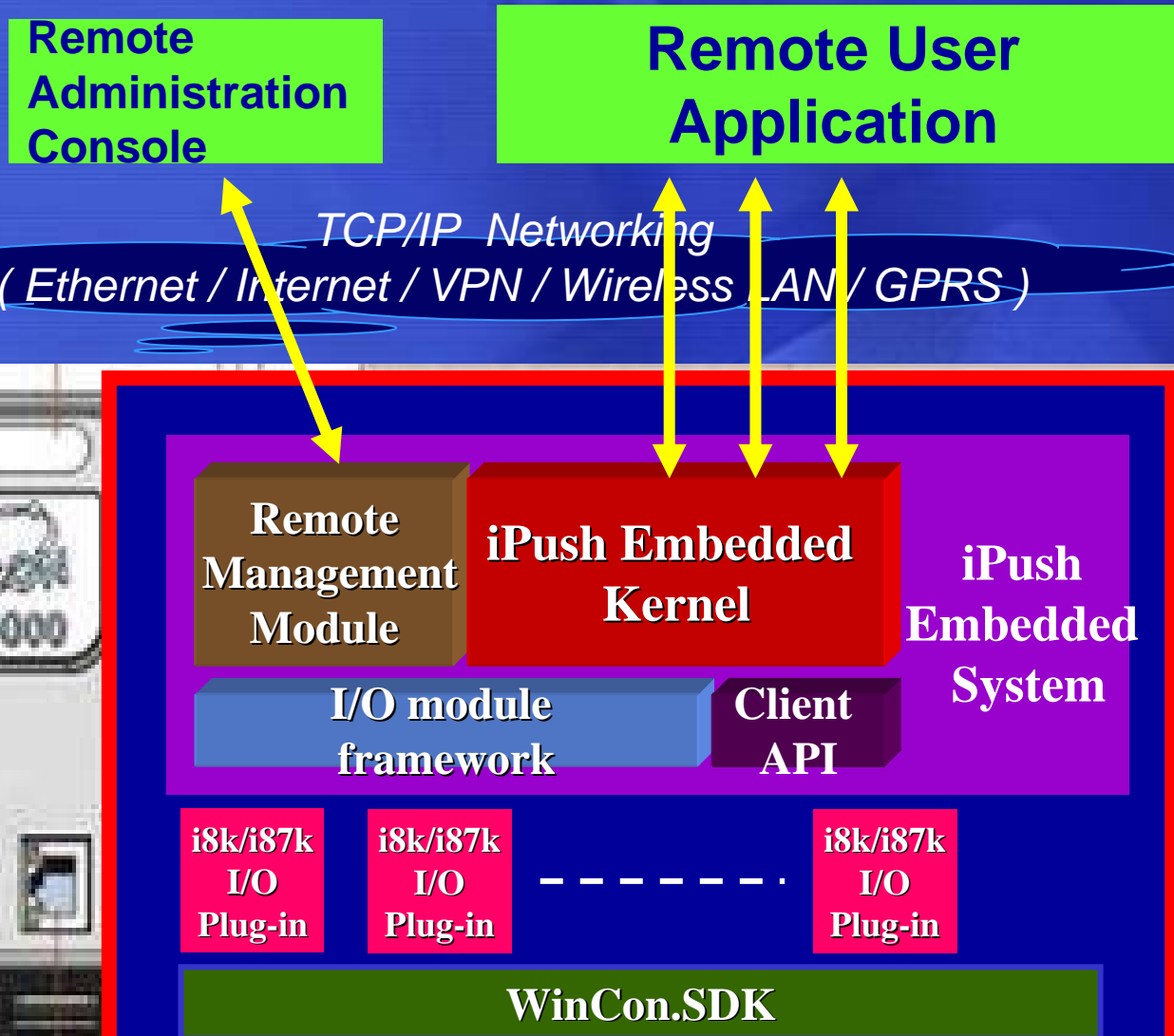
- ❖ iPush<sup>®</sup> Embedded Using Real-Time **Publish/Subscribe (Pub/Sub)** Messaging Transmission Mode
- ❖ Here, the one make message we called **Publisher** ( also called message Producer ), The Message receiver we called **Subscriber** (Also Called Message Consumer)
- ❖ This Type of message transmitted by Publisher, by using Channel or Subject, broadcasting to one or more Subscriber.

# Real-Time Publish / Subscribe



# Design for Controller iPush Embedded

# Push<sup>®</sup> Embedded in WinCon-8000



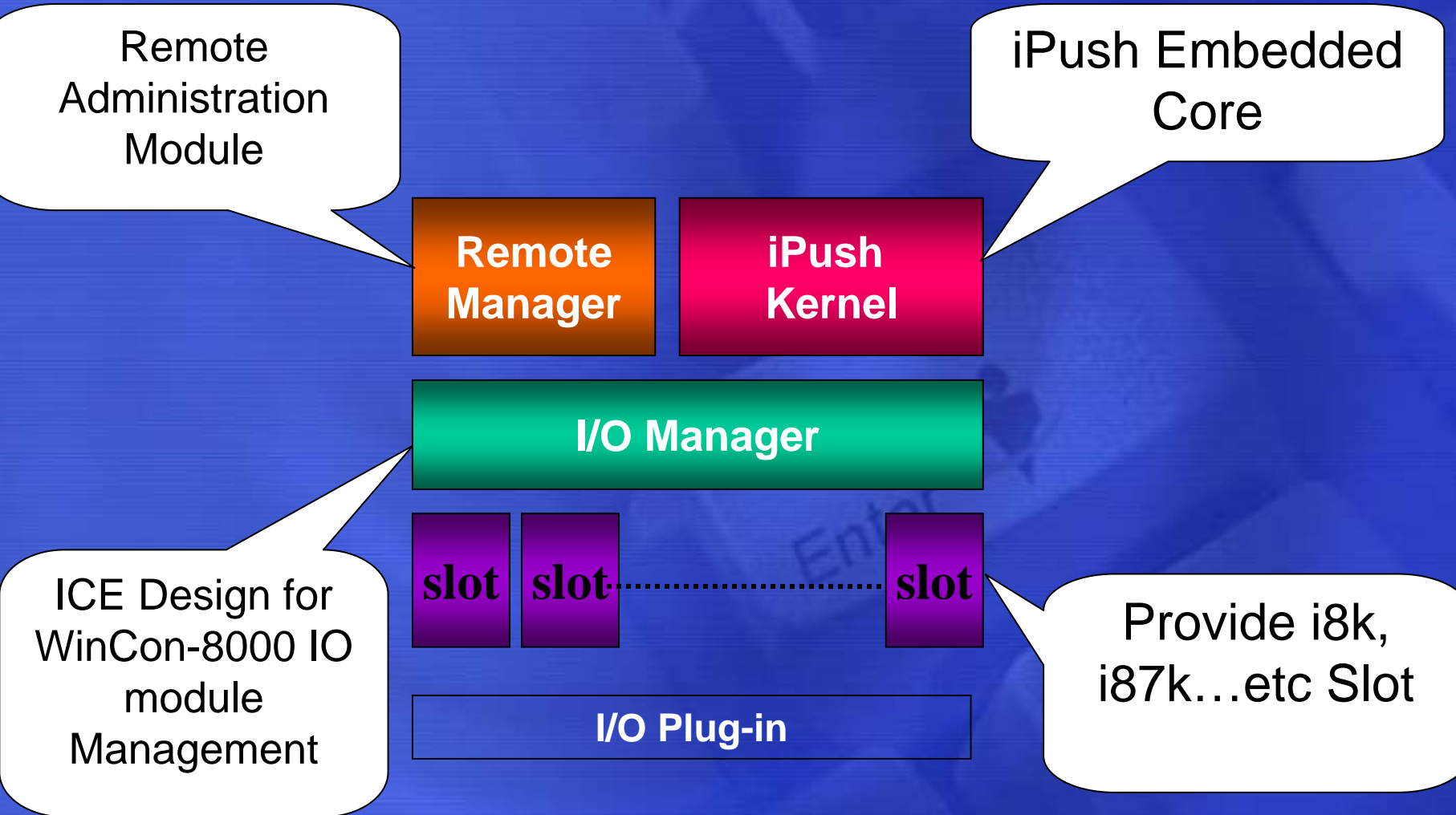
# Special Feature

- ❖ **Automatic Detective Module Add/Remove**
- ❖ **Remote Configuration**
- ❖ **Scan Detective Controller**
- ❖ **Boot Time Automatic Loading**

# Installation Kits Contents

- ❖ Provide Windows CE.NET based Controller installation package
- ❖ Controller can Install different I/O Module
- ❖ Installation kits including:
  - ◆ iPushCE Program Core
  - ◆ License and Authentication module
  - ◆ Logging System
  - ◆ IOModule
  - ◆ Remote Administration Module and Clients

# System Architecture





# CE.NET Service

## ❖ iPushCE

- ◆ Instant messaging core

## ❖ LogExpiror

- ◆ Logging System

## ❖ IOModule

- ◆ Module I/O interface

## ❖ RAdmAgent

- ◆ Provide Remote Administration Ability

# IOModule

# OModule Feature

- ❖ **Detective I/O Module Plug In-and-Outs**
- ❖ **Provide an Messaging Bridge between I/O Module and iPushCE Core**
- ❖ **Message Subject Structure**
  - ❖ *wc8jk.[controller name].[module name]\_[slot].[groups].[tag name]*
  - ❖ *wc8k.chobits.8041\_2.supergroup.subgroup.TagA*

# Subject Structure

1

2

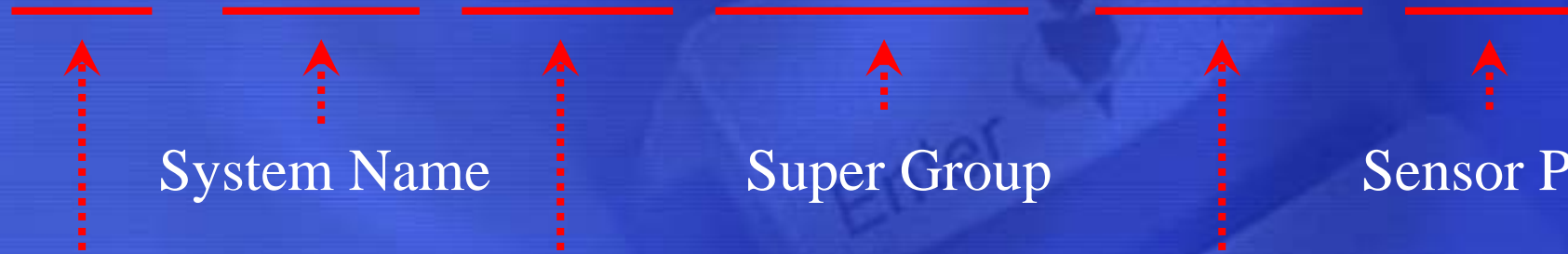
3

4

5

6

*wc8k.chobits.8041\_2.supergroup.subgroup.TagA*



WinCon-8000

System Name

I/O Interface

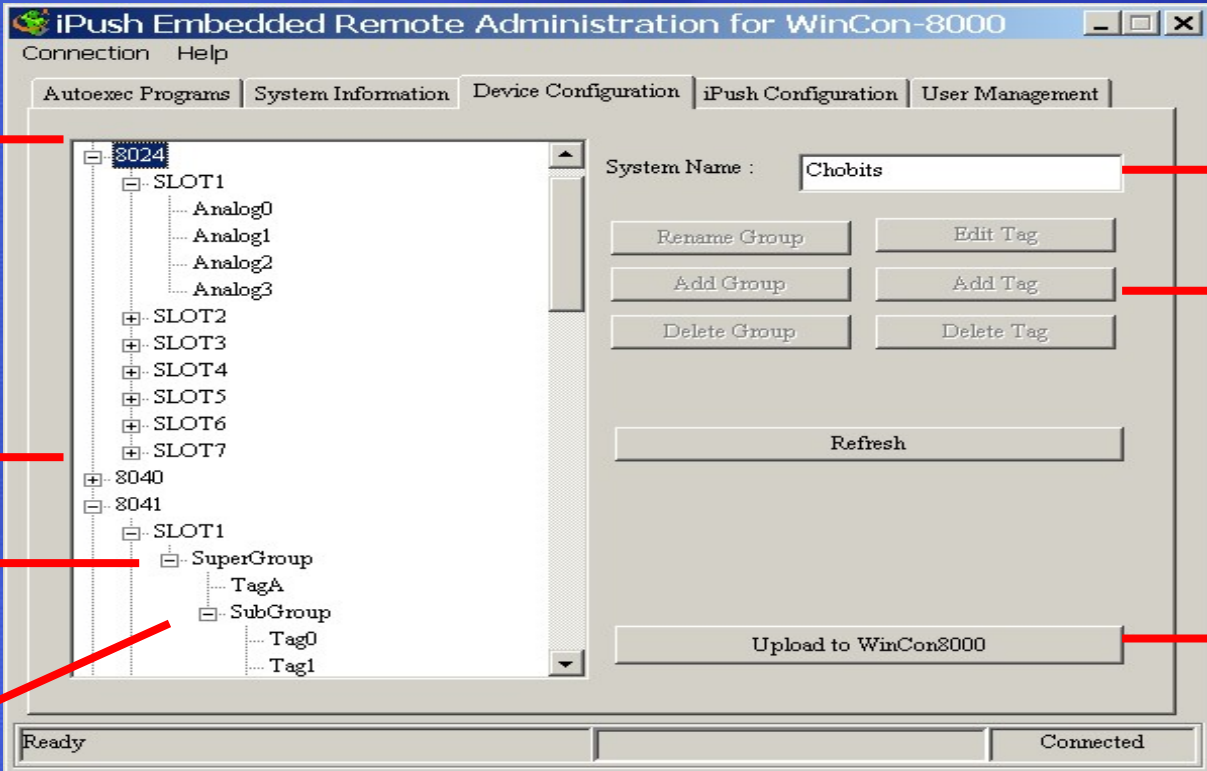
Super Group

Pin Group

Sensor Pin

# Subject Structure Figure

## ❖ Device Status Display



The screenshot displays the 'iPush Embedded Remote Administration for WinCon-8000' application window. The interface includes a menu bar (Connection, Help) and a tabbed interface with 'Device Configuration' selected. On the left, a tree view shows a hierarchy of components: 8024 (expanded), SLOT1 (with Analog0-3), SLOT2-7, 8040, 8041, and SLOT1 (with SuperGroup, TagA, SubGroup, Tag0, Tag1). On the right, a 'System Name' field contains 'Chobits', with buttons for 'Rename Group', 'Edit Tag', 'Add Group', 'Add Tag', 'Delete Group', and 'Delete Tag'. A 'Refresh' button is also present. At the bottom right, an 'Upload to WinCon8000' button is visible. The status bar at the bottom shows 'Ready' and 'Connected'.

Numbered callouts (1-6) indicate the following elements:

- 1: System Name field (Chobits)
- 2: Tree view area
- 3: Add Group and Add Tag buttons
- 4: SuperGroup and SubGroup nodes
- 5: TagA and Tag0 nodes
- 6: Upload to WinCon8000 button

# Remote Administration

# About Remote Administration

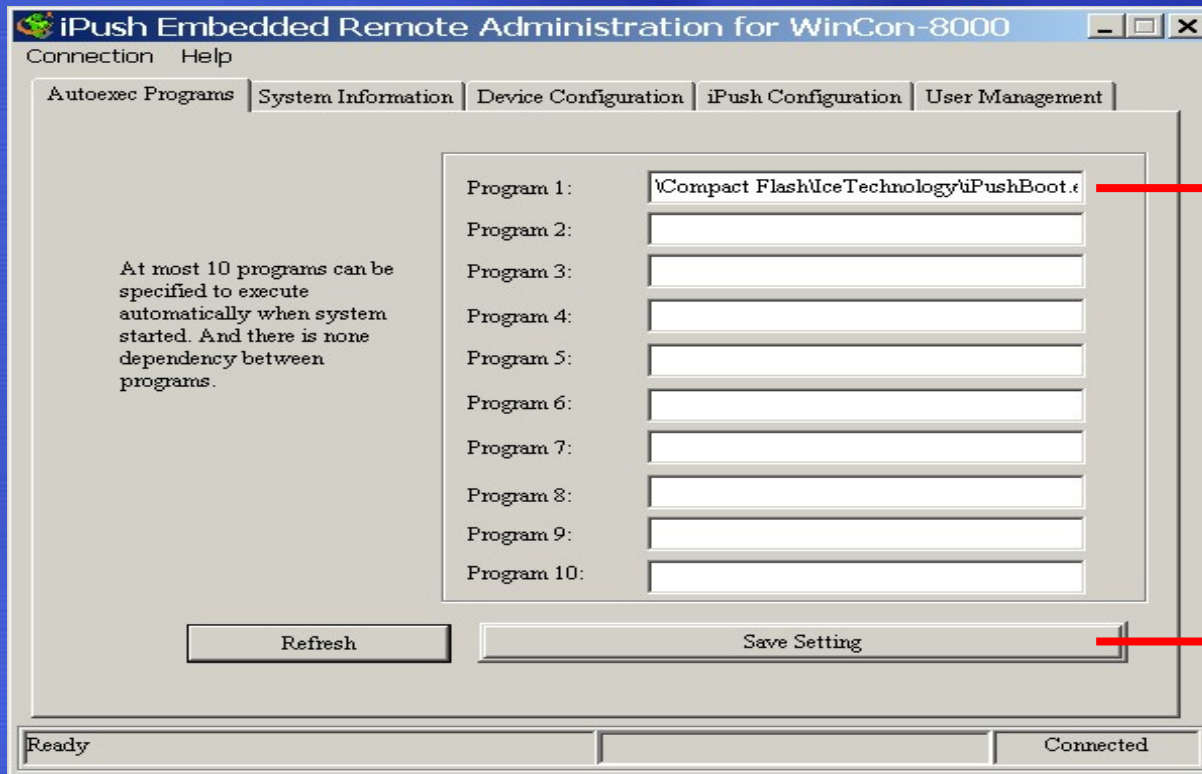
## ❖ Remote Administration Program ( RAdm.exe )

### ❖ Function

- ◆ IOModule Configuration
- ◆ Software Update
- ◆ Scan iPush Embedded Device on Lan
- ◆ Controller Configuration
- ◆ iPushCE Configuration
- ◆ User Accounts Permission Setting

# Remote Administration (1/5)

## ❖ Autoexec Programs



1

2



# Remote Administration (2/5)

## ❖ System Information

iPush Embedded Remote Administration for WinCon-8000

Connection Help

Autoexec Programs System Information Device Configuration iPush Configuration User Management

SLOT 1:	I-8054	Serial Number:	9 : AF : AA : AF : AB : AB : BE : AF
SLOT 2:	I-8024	MAC address :	00 0D E0 FE 01 01
SLOT 3:	I-8017	EEPROM Size :	16K bytes
SLOT 4:	I-8041	Flash Memory Size :	32M bytes
SLOT 5:	I-8040	OS Version :	Windows CE .NET 4.1 01-00-00
SLOT 6:	I-8056	OS Image Size :	13411460 bytes
SLOT 7:	I-8053	WinCon SDK Version :	WinCon SDK 1.0.0

Refresh

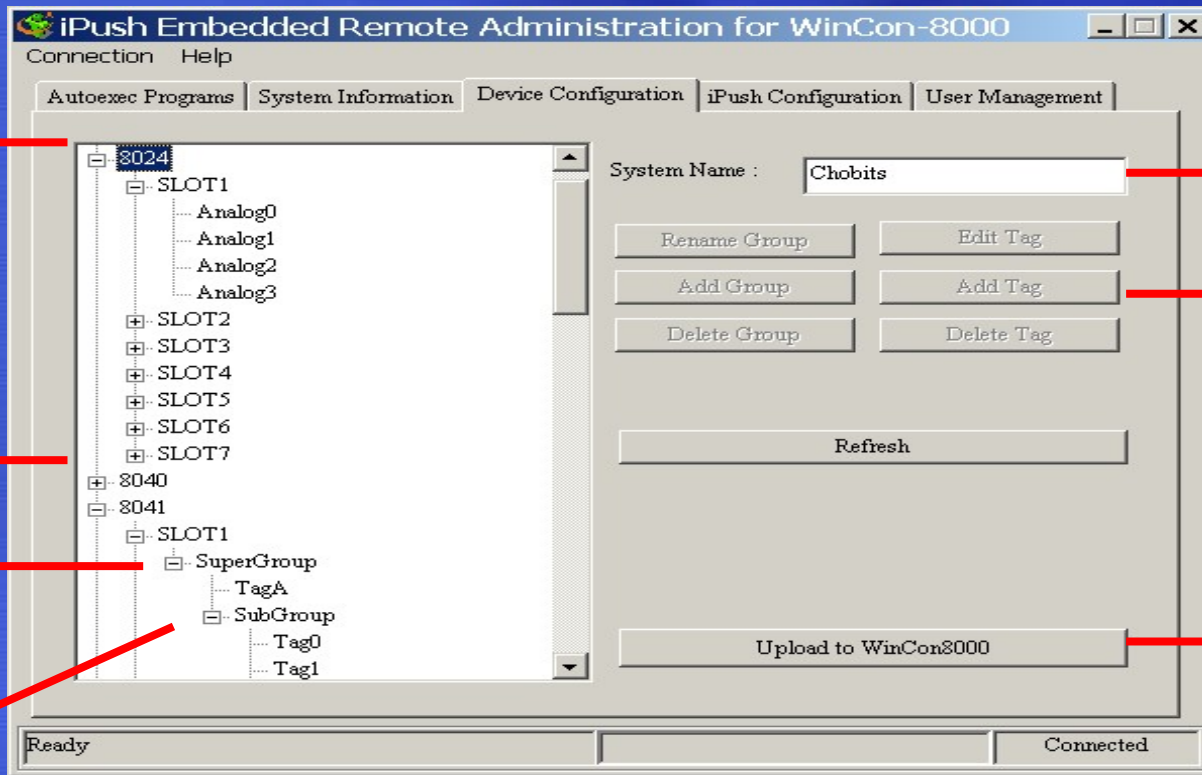
Ready Connected

1

2

# Remote Administration (3/5)

## ❖ Device Configuration



# Subject and Tag

## ❖ System Name Setting

## ❖ Subject

- ◆ Add
- ◆ Modify
- ◆ Erase

## ❖ Tag

- ◆ Add
- ◆ Modify
- ◆ Erase

# Remote Administration (4/5)

## ❖ iPush Configuration

1

Item	Value
ListenPort	6000
LogFileLevel	3
SourceReconnectTimeout	12000
SourceServer0	192.168.0.183:6000

2

Edit Selected Item

Refresh

Log File Expiration

Size(MB): 10 Days: 7

3

4

Upload to WinCon8000

Ready Connected

# Connection and Log

## ❖ Log Items

- ◆ Log Port
- ◆ Log File Level

## ❖ Source Timeout

## ❖ Source Server

- ◆ Log
- ◆ Size
- ◆ Days

# Remote Administration (5/5)

## User Management

The screenshot displays the 'User Management' tab of the 'iPush Embedded Remote Administration for WinCon-8000' application. The interface includes a menu bar with 'Connection' and 'Help', and a tabbed navigation area with 'Autoexec Programs', 'System Information', 'Device Configuration', 'iPush Configuration', and 'User Management'. The main area contains a table of users and a form for user management.

User ID	Last Login	Last Logout	From	Status
IOM	2003/12/27 05:41:26		127.0.0.1	1
ice	2003/12/27 11:13:58	2003/12/27 11:13:58	192.168.0.1...	0
wc8k	2003/12/27 05:45:19	2003/12/26 11:14:32	192.168.0.1...	1

The form below the table includes the following fields and buttons:

- User ID :
- Password :
- Re-enter Password :
- Read Permission :
- Write Permission :
- Default Permission :
- Buttons: Refresh, Add User, Delete User, Save

Numbered callouts (1-5) indicate the following elements:

- 1: The user table
- 2: The User ID input field
- 3: The Add User button
- 4: The Default Permission input field
- 5: The Save button

# User and Permission

## ❖ User Management

- ◆ Default Accounts
- ◆ System Accounts

## ❖ Permission Management

- ◆ Read Permission
- ◆ Write Permission
- ◆ Default Permission

# Installation and Demo



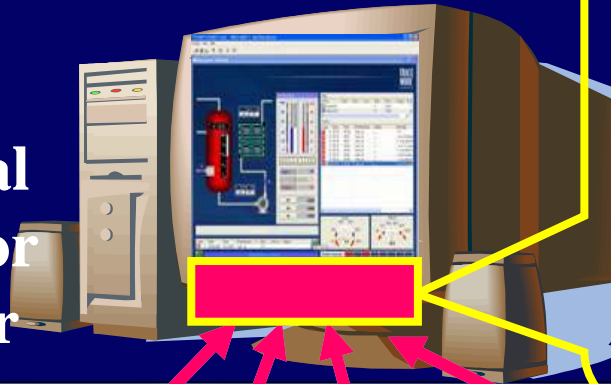
# Installation

- ❖ Independent with Device
- ❖ ICPDAS WinCon-8000
  - In Compact Flash Card
  - Boot up Setting Windows CE Registry
  - Four CE.NET Service
    - ◆ iPushCE
    - ◆ LogExpiror
    - ◆ IOModule
    - ◆ RAdmAgent
  - Service List Command

# DEMO

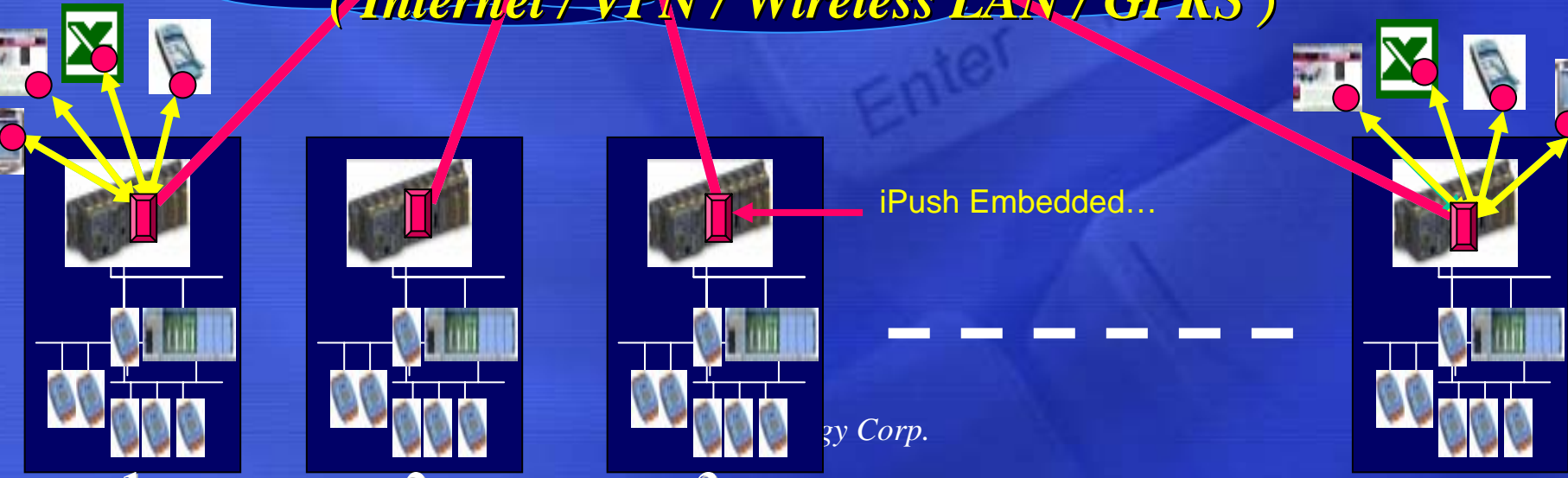
# Example I

Central  
Monitor  
Center

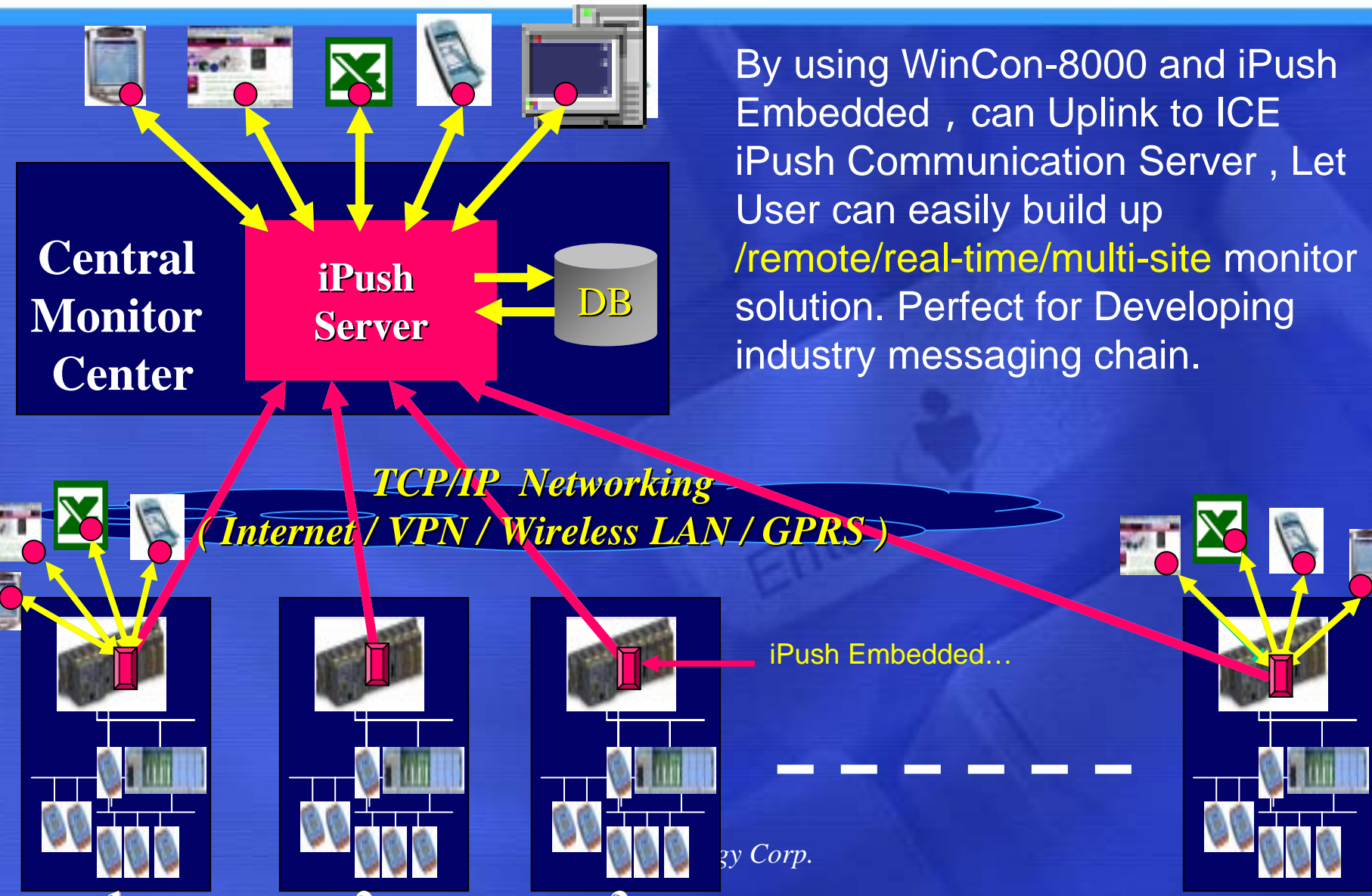


By Using **Remote Manager utility**, iPush Embedded can activity push data back to central center, don't need central processing polling device status. Let Central can easily remote management hundreds of devices.

**TCP/IP Networking**  
(*Internet / VPN / Wireless LAN / GPRS*)



# Example II



By using WinCon-8000 and iPush Embedded , can Uplink to ICE iPush Communication Server , Let User can easily build up */remote/real-time/multi-site* monitor solution. Perfect for Developing industry messaging chain.

## ❖ ICE Technology Developer Center

[www.icetech.com.tw/icedc/](http://www.icetech.com.tw/icedc/)

## ❖ e-Paper and Successful Story

[www.icetech.com.tw/icedc/weekly.shtml](http://www.icetech.com.tw/icedc/weekly.shtml)

# Other Resource

❖ **ICP DAS CO., LTD.**

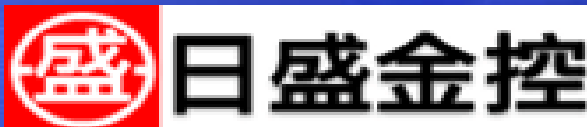
[www.icpdas.com](http://www.icpdas.com)

❖ **Microsoft Embedded Site**

[www.microsoft.com/embedded](http://www.microsoft.com/embedded)

**ICE Technology** is the very first software company specialized in the development of massive connection MOM (Message-oriented Middleware) in Asia Pacific region. The goal of the company is to become 'The World-class Business Communication Software Provider'. Now, ICE Technology is actively promoting the MOM products in the global market. There are many world class enterprises and organizations adopting or bundling ICE MOM products with their products, services, and solutions.

# Customer





# Contact

## Global Center

ICE Technology Corp.

Addr.: 12F-1, No.9, Sec.2, Roosevelt Rd., Taipei, Taiwan 100

TEL: +886-2-23961880

Fax: +886-2-23961881

## 中國地區

艾揚科技(武漢)有限公司

武漢市漢口建設大道 933 號 16 樓 1607 室 郵編 : 430015

電話 : +86 27 8265 6360

傳真 : +86 27 8265 6378

E-Mail: [service@icetechnology.com](mailto:service@icetechnology.com)

Web Site: <http://www.icetechnology.com>

ICE Developer Center: <http://www.icetechnology.com/icedc>

# Questions

# Thank You