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1. PC Server

PC Server [1]의 요구증가

Client/Server 환경의 대

네트워크 구성 및 대로 소규모 서버 요구중대

PC Server의

고성능 PC
SERVER의 요구증가

Pentium II
Pentium III
등장으로
저가 고성능
HW등장

대용량 자료처리를
원한 비른
처리속도 요구

데이터방의
급속한 증가

장치 TCP/IP [32]의

LAN [40]의

설치.
PC Server][ ]  

Corresponding Vendors[ ] , DECnet (Digital Equipment Corporation) [41], IPX (Novell) [42], SNA (IBM) [42] and XNS (Xerox corporation) [42][ ] .

TCP/IP [32][ ] OSI (Open System Interconnect) [26][ ] .

Internetworking[ ]  

PC [ ] Workstation[ ]  

SNMP [2][ ] Desktop[ ]  

Web[ ] Enterprise[ ]  

LAN[ ]  

Mini Computer[ ]  

Workstation[ ]  

Vendor[ ]  

Protocol[ ]  

Vendor[ ]  

System[ ]  

Vendor[ ]  

Protocol[ ]  

TCP/IP [32][ ]

OSI (Open System Interconnect) [26][ ] .
2. RAS (Reliability, Availability, Serviceability) Tool

2.1 System Manager [27]

...continue reading...
2.1.1  System Manager

System Manager[]  系統管理員 負責各種系統的監控。這包括呼叫管理、問題管理、維護管理等。

2.1.1.1  Call Management

Call Management 系統管理員 負責呼叫管理。這包括呼叫的創建、修改和刪除。

Problem Management 系統管理員 負責問題管理。這包括問題的創建、修改和刪除。

Vendor Management 系統管理員 負責廠商管理。這包括廠商的創建、修改和刪除。

2.1.1.2  Backup & Restore

Backup & Restore 系統管理員 負責備份和恢復。這包括備份的創建、修改和刪除。

Log Data 系統管理員 負責日誌數據。這包括日誌的創建、修改和刪除。
Graphical Results

2.1.1.4 Policy Based Graphs

Policy Based Graphs are used for various purposes such as Set & Forget, Set On, Sign On, ID, Access, etc. Set & Forget, Set On, Sign On are used for specific ID, Access purposes.

2.1.1.5 Trigger Event

Trigger Event Graphs are used for various purposes such as Load Balancing, Event, Report & Spool, etc.

2.1.1.6 Software
S/W[25].
<p>| | |</p>
<table>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>SW</td>
<td>SW  Up/ Down Load</td>
</tr>
<tr>
<td>DB</td>
<td>Up/ Down Load</td>
</tr>
<tr>
<td>Help Desk</td>
<td>HW, SW, SW</td>
</tr>
<tr>
<td></td>
<td>HW, SW, SW</td>
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<tr>
<td></td>
<td>HW, SW, SW</td>
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<td></td>
<td>HW, SW, SW</td>
</tr>
<tr>
<td></td>
<td>HW, SW, SW</td>
</tr>
</tbody>
</table>

1.
2.2 DMI (Desktop Management Interface)


2.2.1 DMI (Desktop Management Interface)

DMI [ ] PC [ ] , Application [ ] DMTF [ ] Intel [ ] IBM, Compaq, NCR, HP, CA [ ] 1996 [ ] DMI [ ] 2.0 Version [ ]

DMI Management Program [ ] System Component [ ] [ ] V2.0 [ ] , [ ] [ ] [ ] [ ] [ ] Vendor [ ] DEC/RPC [7, 8], ONE/RPC [7, 8] TI/RPC [7, 8] CMIP [10], SNMP [2] SP
(Service Provider) Interface.

② SP (Service Provider) : MI CI Data, MI CI Data.

③ CI (Component Interface) : Component get/set SP Data.

④ MIF (Management Information Format) File : Component MI Format Text File.

2.2.2 SNMP

TCP/IP [28, 37] End-to-End ICMP (Internet Control Message Protocol) [26] End-to-End Host. ICMP Host. HEMS (High Level Entity Management System) [12], SGMP (Simple Gateway Monitoring System) [13], CMIP/CMIS (Common Management Information Protocol/Services) [10].
2.2.3 WBEM

WBEM (Web-Based Enterprise Management) [6, 35, 36] is a standard that has been developed by Microsoft, Intel, Compaq, BMC, CISCO, etc. It is based on the PDK (Product Development Kit) and the Web User Interface of System Manager. WBEM uses SNMP and other protocols to access and manage network devices. The WBEM standard has been adopted by many companies, including Digital and HP, and their implementation of WBEM is based on V1.x. The current standard is V2.0.
1. Web-browser  Device  Application


3. (Unifying Management Schema)

4. SNMP, DMI

WBEM

Management Service, Internet Browser  HTTP (Hyper Text Transfer Protocol)
2. WBEM Architecture

2.2.4 CIM

CIM (Common Information Model) Object-based Management Tool. CIM is an object-oriented Data Model defined in 1997. CIM 1.0 was defined by DMTF. CIM includes SNMP, DMI, CMIP and Data Model. Computer Associates, HP, IBM/Tivoli, Intel, Microsoft, and WMI (Window Management Interface: DMI Implementation) are also part of the WBEM PDK.
(Window Device Model), MMC (Microsoft Management Console) NT5.0.


2.3 Windows NT [3]


Windows NT [30] [16].

2.3.1 Windows NT [3]

Windows NT [3] [VPN].
2.3.1.1 WMI

Microsoft WMI (Windows Management Instrumentation) [45] is a standard which is supported by MSFT Windows NT and Windows 2000. Windows Script Host (WSH) is included in Windows NT and Windows 2000. WMI is also supported by Microsoft Management Console (MMC) and Windows Script Host (WSH).

WBEM is a standard which is supported by MSFT Windows NT and Windows 2000.
Microsoft WMI is a Windows component that provides a uniform way to access information about system resources, including WMI, COM/DCOM, and Win32® APIs (DLLs). WMI is used to manage CIM (Computer Integrated Manufacturing) resources.

2.4 DDC, PLC, and PID

In 1980, CIM (Computer Integrated Manufacturing) was introduced. There are three main sections: 1 (DDC and PLC), 2 (Win32®), and 3 (other). DDC (Direct Digital Controller), PLC (Programmable Logic Controller), and PID are mentioned.

ª. Microsoft WMI is a Windows component that provides a uniform way to access information about system resources, including WMI, COM/DCOM, and Win32® APIs (DLLs). WMI is used to manage CIM (Computer Integrated Manufacturing) resources.

2.4 DDC, PLC, and PID

In 1980, CIM (Computer Integrated Manufacturing) was introduced. There are three main sections: 1 (DDC and PLC), 2 (Win32®), and 3 (other). DDC (Direct Digital Controller), PLC (Programmable Logic Controller), and PID are mentioned.
2.4.1 Application

3. Tracking: [39] Application ¼²°¬·®·® Àê·±© ¼²°¬·®·® Àê·±©.
Process I/O: Panel, Monitor, Printer

Operator I/O: Panel, Monitor, Printer

2.4.2

Platform: PC

2.4.2.1

Maker: S/W

(H/W, S/W)

Network
2.4.3 PC±â¼úµ¿ÇâÀ» ¹× ¹ßÀü¹æÇâ

Windows NT － PC, Pro-Com Network, TCP/IP, Windows NT

<table>
<thead>
<tr>
<th>端末</th>
<th>システム</th>
<th>インターフェース</th>
<th>端末類型</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>Pro-Com Network</td>
<td>TCP/IP</td>
<td>‘95</td>
</tr>
<tr>
<td>IP</td>
<td>IP, Sub Net</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pro-Com</td>
<td>EIC ‌ HMI</td>
<td>PC, WinNT, InTouch</td>
<td>‘96</td>
</tr>
<tr>
<td>S/W</td>
<td>OpenVMS, C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S/W</td>
<td>WinNT, Midas , , C S/W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S/W</td>
<td>PC-based Pro-Com</td>
<td>PC, WinNT, TCP/IP, Midas , S/W</td>
<td>‘99</td>
</tr>
<tr>
<td>PLC, DCS</td>
<td>PC-based</td>
<td>PC, WinNT, VLC, Profibus</td>
<td>‘99</td>
</tr>
</tbody>
</table>

2.4.4 PLC, PC ±â¼úµ¿Çâ
2.4.4.1

3. 

DCS, Window PC, Thin Client, PC Server, TV Camera
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro-Com H/W, O/S</td>
<td>PC Server</td>
<td>Windows NT/2000</td>
</tr>
<tr>
<td>Alpha Server</td>
<td>Unix</td>
<td>OpenVMS</td>
</tr>
<tr>
<td>PC-based O/S</td>
<td>Windows NT/2000</td>
<td>2000.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VLC(Visual Logic Controller)</td>
</tr>
<tr>
<td>Network</td>
<td>Ethernet, Profibus-DP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Data, Network, Interface</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DCS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WBEM Architecture</td>
<td></td>
</tr>
<tr>
<td>EIC HMI</td>
<td>EI (Hybrid)</td>
<td></td>
</tr>
<tr>
<td>Network</td>
<td>Ethernet, Profibus-DP</td>
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<tr>
<td></td>
<td>FACOM Emulator: DCA IWW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O/S : Windows NT/2000</td>
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</tr>
<tr>
<td></td>
<td>H/W : Intel PC</td>
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<tr>
<td>S/W</td>
<td>HMI S/W Tool : InTouch, Citect, Ci Technology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FACOM Emulator: DCA IWW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O/S : Windows NT/2000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H/W : Intel PC</td>
<td></td>
</tr>
</tbody>
</table>

3. 3. 3. 3. 3.
2.5 Customizing Point Framework

BMC Partrol [17], NAS Center [18], Ecoscope [19], CA TNG [21], HP Openview [22], IBM TANDEM, UNISYS, UNIX, NT

2.6 Framework SW IBM, TANDEM, UNISYS, UNIX, NT
23

2.6.1 Smartguard

Smartguard [24] is a computer operation monitoring software used by IBM, SUN, UNIX, NT, etc.

Smartguard supports various environments and services such as Message Box, E-Mail, Pager, Alarm, Log, and Reporting.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>CPU,</td>
<td>UPS, FRU (Field Replaceable Unit), Network Device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage, FAN Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Server Management Board</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charge Time, Status Monitor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Event Log, NT Service Information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Scheduling, Configuration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device (vendor, Model), Part Code, H/W, Part Code, (Up/Down), Packet Error</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Smartguard

ESM (Enterprise System Manager) SmartGuard

ESM SmartGuard Console

ESM Network Device

LAN S/W
Management  

Network Device  

SMB (Server Management Board)
### 3. Fault Management

- Configuration Management
- Performance Management
- Application Management

#### 3.1 System Management Functions

- Object Management
- State Management
- Alarm Reporting
- Event-Report Management
- Log Control
- Access Control
- Workload Monitoring

#### Management Functions

- App. Process Mgmt
- Table File Mgmt
- Link Status Mgmt
- Application Database Mgmt
- Queue(Printer) Mgmt
- Error Log
- Troubleshooting Mgmt

### 4.
| 4 | 5 | 2.1 System Management Function
|

**Management Function**

2.1 Application

<table>
<thead>
<tr>
<th>Application</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Management Function</td>
<td>4</td>
<td>5</td>
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</tbody>
</table>

<p>| 5. |</p>
<table>
<thead>
<tr>
<th></th>
<th>Application</th>
<th>Link Status</th>
<th>Queue(Printer)</th>
<th>Error Log</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Table File</td>
<td>Application Global Table File</td>
<td>Global Table File</td>
<td>Global Table File</td>
<td>Global Table File</td>
<td>Global Table File</td>
</tr>
<tr>
<td>PLC(Programmable Logic Controller)</td>
<td>DCS(Distributed Control System)</td>
<td>Client PC</td>
<td>Display</td>
<td>DBMS</td>
<td>Application</td>
</tr>
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<td>°øÁ¤Á¦</td>
</tr>
</tbody>
</table>

6. 6. 6. Application 6. 6. 6.
4. 

4.1 

Windows NT Server, Windows NT Workstation, Windows NT Server Access Provider (Built-in Provider), Windows NT Server Internet Information Server, Internet Service Provider (ISP), Service Provider (Service Provider), Management Application (MA) [33].

MA, SP, MI, CI, Web, Console.

SP, MA, MI, CI Module, Component, CI Module, MI Module, CI Module, Core Module, Component, SP, CI Module, CI Module, CI Module, CI Module, CI-Code.

5. 

...
Web-based User Interface

Request & Respond

Web Server

Management Application

Mgmt Database

Service Provider

MIB

Device
4.2  

Module SP (Service Provider) MA (Management Application). 

4.2.1  

SP (Service Provider) 

4.2.1.1  

DMI 2.0 Spec Service Provider Management Application Entry Point 

4.2.1.1.1 MI (Management Interface) 

MI Service Provider Management Application Management Application Entry Point Management Application Service Provider AP Service Provider Entry Point Management Application Provider AP 

Initialize Functions : MA SP 

Listing Functions : MA SP Component
4.2.1.1.2 CI (Component Interface)

Service Provider Component Instrumentation Code Interface
Component Instrumentation Entry Point Service Provider API Entry Point Component Provider API

Initialize Functions: CI-Code (Component Instrumentation Code)

Event Handling Functions: SP Component Event MA MA Event SP Database Log

4.2.1.1.3

Management Application Component
Synchronization, Flow Control

4.2.1.2 Service Provider

3 Module, Core Module, SP Module (Flow Control, DB Handling, File Handling) SP Module MI Module MA Interface, CI Module Device Interface. MI Module and MI Module Initialize Function, Listing Function, Operation Function Core Module Flow Control Function, Memory Handle Function, DB Handle Function CI Module CI Functions for Component

Management Application

Service Provider

MIB

Components (Device, Basic S/W, Process)

6. Service Provider

33
4.2.1.2.1 Core Module

Core module SP MA Component SP MA MI MI MA MI

Flow Control Functions: SP MA Component SP MA
Event Request Event (Serialization)

DB Handling Functions: Component MI MI DB MI MI DB
MI Read/Write MI MI Library

Memory Handling Functions: MI MI MI MI MI MI MI MI MI MI MI MI MD (Malloc) MD (Free)
Library

4.2.1.2.2 MI Module

SP MA Interface DMI Spec MI MA MI MI Server MI Client MI MI
4.2.1.2.3 CI Module

SP Component Interface DMI Spec Core Module. SP CI CI-Code SP CI CI-Code.

4.2.2 MA (Management Application)

Management Application MA MA-Code SP CI CI-Code MA.

4.2.2.1 MA

MA UIF (User Interface Functions) UIF MAP-API SP-API Event. Grouping.

MAF (Management Application Functions) UIF MAP-API SP-API Function Event.

SP-API (Service Provider API) Service Provider Service Provider API for Management Application.

MAP-API (Management Application Provider API) Service Provider Management Application Interface Service.
Provider API Entry Point Management Application Provider API Entry Point Management Application

Fault Management Function: Managed Server System Fault Management Function: Managed Server System

Configuration Management Function: Managed Server System Configuration Management Function: Managed Server System

Performance Management Function: Managed Server System Performance Management Function: Managed Server System

Application Process Management Function: Application Database Table Management Function: Application Database Table Management Function: DBMS

Link Status Management Function: PLC (Programmable Logic Controller), DCS (Distributed Control System) Link Status Management Function: PLC (Programmable Logic Controller), DCS (Distributed Control System)

Queue Management Function: Printer Queue Management Function: Printer

Application Error Log Management Function: Application Error Log Management Function:
4.2.2.2 Management Application

MA SP Attribute
Database SP Event

User Interface.


SP-API MAP-API

Event Request

Server Provider

7. Management Application

MAP-API (Management Application Provider API) : Managed Server, Event Management Application, Service Provider.

SP-API (Service Provider API) : Management Application, Managed Server System, Get/Set Management Application, Service Provider, Service Provider API for Management Application.

Graphical User Interface (GUI) : MS-Windows.
Global Table  File
, Link Status , Application DB , Queue , Error Log

: OS Version, CPU , Memory , HDD , SW Up Time, 
Process List, ( , ), Event Notification 

Table : Table , 
Table : Table , Table : Schem

4.2.4 Database Table
DB Table Schema

Table: (Username, Password)

Table: (CPU, Memory, Disk)

Table: (CPU, OS, HDD Status)

Table: (Host Model, CPU Type, CPU Clock Speed, Memory Size, HDD, IP, SW List, Process List)
5. 


5.1

Windows NT 4.0 Service Pack 5, Windows 2000, WMI SDK (WMICORE.exe, WMISDK.exe) [38], Visual C++ 6.0 Compilers [25], Pentium-class Computer 32 MB RAM, 30 MB of Available Hard Disk Space.

Web User Interface, Management Application, Service Provider Architecture.
**Architecture**

- **Web-based UI by ASP**
  - Performance.asp, Fault.asp
  - Maintenance.asp, Register.asp
  - Configure.asp, Display_log.asp
  - Info_dynamic_display.asp
  - Info_statistic_daily_display.asp

- **Web Server**
  - HTTP

- **Repository**
  - CIMOM

- **DB**
  - ASP

- **CIMOM**
  - DCOM

- **Built-in Provider**
  - Win32
  - WDM
  - Registry

- **App Process Provider**
  - App Process Provider
  - Link Status Provider
  - App DB Provider
  - Queue Provider
  - Error Log Provider
  - App Data Provider

- **Components** (Win32, Registry, WDM)

- **System MA by C++**
  - Fault Mgmt Func.
  - Configuration Mgmt Func.
  - Performance Mgmt Func.

- **By SQL Library**
  - Application Process Mgmt Func
  - Link Status Mgmt Func
  - Application DB Table Mgmt Func
  - Application Error Log Mgmt Func
  - Application Data Mgmt Func.

- **WMI API**
  - Components (Win32, Registry, WDM)
5.2  

Service Provider

Built-in Service Provider

Service Provider.

5.2.1  

Built-in Service Provider

Windows NT WMI SDK Provider

Built-in Service Provider

Built-in Service Provider.

<table>
<thead>
<tr>
<th>Built-In Providers</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Directory Services Provider</td>
<td>Active Directory Class, Object</td>
</tr>
<tr>
<td>Event Log Provider</td>
<td>NT Event Log Data Access</td>
</tr>
<tr>
<td>MS Windows Installer Provider</td>
<td>Windows Installer Access</td>
</tr>
<tr>
<td>Performance Counters Provider</td>
<td>Performance Counter Data Access</td>
</tr>
<tr>
<td>Performance Monitor Provider</td>
<td>NT Performance Monitor Data Access</td>
</tr>
<tr>
<td>Power Mgmt Event Provider</td>
<td>Event</td>
</tr>
<tr>
<td>Registry Event Provider</td>
<td>Registry Key, Value, Tree Event</td>
</tr>
<tr>
<td>Registry Provider</td>
<td>Registry Data Access Access</td>
</tr>
<tr>
<td>Security Provider</td>
<td>Security Settings Access Access</td>
</tr>
<tr>
<td>SNMP Provider</td>
<td>SNMP Devices Data Event Access</td>
</tr>
<tr>
<td>View Provider</td>
<td>Source Classes, Computers Class</td>
</tr>
<tr>
<td>WDM Provider</td>
<td>Device Driver Data Event Access</td>
</tr>
<tr>
<td>Win32 Provider</td>
<td>Win32 Subsystem Data Access</td>
</tr>
</tbody>
</table>

7.  

Built-in Service Provider
5.2.2  Built-in Service Provider Flow


Built-in Service Provider Service Provider WMI Primary Interface IWbemServices Interface IWbemProviderInit Interface Primary Interface IWbemServices Interface IWbemServices Interface Service Provider Management Application IWbemServices method Instance Method .

Flow .

| WMI |
| Primary Interface |
| Initialization (IWbemProviderInit Interface) |
| WMI Request |

10. Built-in Service Provider Flow
5.2.3  Service Provider

<table>
<thead>
<tr>
<th>Providers</th>
<th>Application</th>
<th>Global Table</th>
<th>File</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>App Process Provider</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Link Status Provider</td>
<td>PLC (Programmable Logic Controller), DCS (Distributed Control System)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Client PC</td>
<td>Display</td>
<td>Access</td>
<td></td>
</tr>
<tr>
<td>App DB Provider</td>
<td>DBMS</td>
<td>Application</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>/</td>
<td>Access</td>
<td></td>
</tr>
<tr>
<td>Queue Provider</td>
<td></td>
<td></td>
<td>Printer</td>
<td>Access</td>
</tr>
<tr>
<td>Error Log Provider</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>App Data Provider</td>
<td></td>
<td></td>
<td></td>
<td>Access</td>
</tr>
</tbody>
</table>

8. Service Provider

5.2.4  Service Provider Flow
Main Service Provider

Module DB Memory, File Meta

(Background)

Child-Thread

Serialization

Function Class

Initialization(File, Memory)

Primary Interface (API)

Cyclic Data Handling

10. Flow

11. Service Provider Flow
5.3 Management Application

Management Application Management Application Flow Management Application Flow.

5.3.1 Management Application

Management Application Management Application Class Class, Class Class Class Class 7 Class Class.

<table>
<thead>
<tr>
<th>System Application Management</th>
<th>Fault Management Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Application</td>
<td>Configuration Management Function</td>
</tr>
<tr>
<td>Application Management</td>
<td>Performance Management Function</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System Application Management</th>
<th>Application Process Management Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Database Table Management Function</td>
<td></td>
</tr>
<tr>
<td>Application Error Log Management Function</td>
<td></td>
</tr>
<tr>
<td>Application Data Management Function</td>
<td></td>
</tr>
</tbody>
</table>

9. Management Application Functions

5.3.2 Management Application Flow

Management Application Management Application Management Application Management Application Main Module Main Module Management Application WMI API.

Management Application COM COM COM COM Function

CoInitializeEx CoInitializeSecurity Application Process COM COM COM COM COM Function

CoCreateInstance Instance COM
12. Management Application Program

```c
// COM 初始化
CoInitializeEx(NULL, COINIT_APARTMENTTHREADED);
CoInitializeSecurity(RPC_C_AUTHN_LEVEL_CONNECT,
                    NULL, EOAC_NONE, 0);

// 创建 WBEM Locator 服务提供者实例
hr = CoCreateInstance(CLSID_WbemLocator, NULL, CLSCTX_INPROC_SERVER, IID_IWbemLocator,
                    (void**)&pWbemLocator);

// 连接到本地系统
bstrNamespace = L"root\cimv2";
hr = pWbemLocator->ConnectServer(bstrNamespace,…);
pWbemLocator->Release();

// 获取逻辑磁盘
bstrPath = SysAllocString(L"Win32_LogicalDisk.DeviceID='C:\'");
hr = pServices->GetObject(bstrPath, 0, &pDrive, 0);

// 显示对象
hr = pDrive->GetObjectText(0, &bstrDriveObj);
fprintf(fp, "%s
", bstrDriveObj);
pDrive->Release();
pDrive = NULL;
```
5.4 Web-based User Interface
5.4.1  Login

5.4.2  Main and Menu
15. User Interface

5.4.3 User Interface
16. User Interface

5.4.4

17. User Interface
5.4.5 사용자 인터페이스

이미지: 사용자 인터페이스 설정 화면.

16. 하드 디스크(HDD)에 대한 이벤트 경계 설정. 이 시스템은 하드 디스크의 사용량에 대한 경계 및 경계 값을 설정할 수 있습니다.

17. 예: server

18. 사용자 인터페이스
5.4.7 User Interface

18. CPU, Process list, Status, Memory usage, Disk usage

20. User Interface
6. Service Overview

- Global Table, File, Link Status, Application Database, Queue(Printer), Error Log, Troubleshooting
- Microsoft WMI, Built-in Service Provider, Service Provider
- Database Management Application
- Web, Web-based User Interface
- PC Server, Back-End Program, Web-based User Interface
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