

# 熱忱、朋友、舞台

詹德彥 (微軟MCSE /Red Hat RHCE /CISCO CCNA / CCNP )

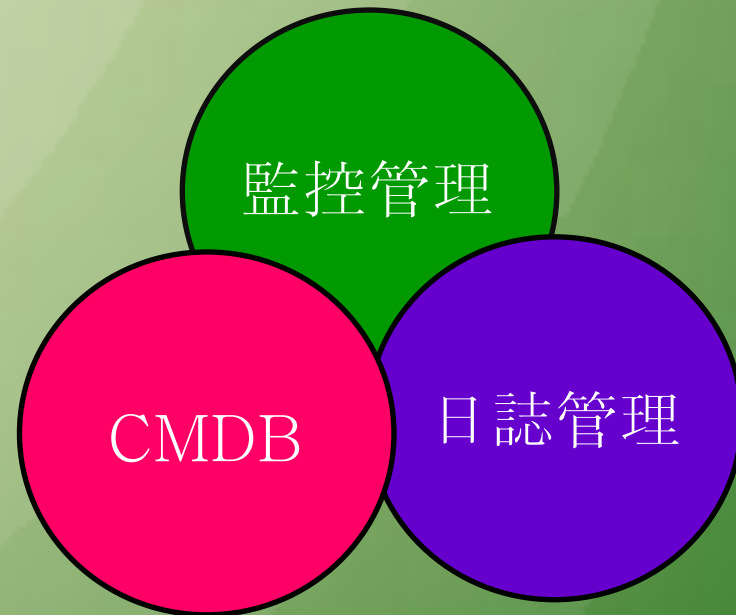
CACTI 平台測試/軟體模組測試/整合監控系統需求

蔡宗融 ( Windows & VM & Linux )

CACTI 模組開發/VM Ware/Trap/WeatherMap

楊勝雄 ( DB & AP & Linux )

CACTI 程式開發/軟體&網頁修改/資料庫



# 大綱



CACTI 介紹



監控管理設備



警示與事件管理



報表系統



其它



# CACTI 介紹-WHY CACTI

## 優點

- Polling 速度快
- 穩定性佳
- 外掛與客製化
- 整合性高
- 直覺式操作
- 支援中文
- 網路上可供查詢的資料多
- 權限管理
- 功能彈性大
- OPEN SOURCE

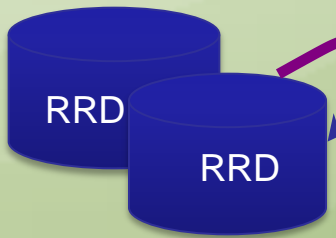
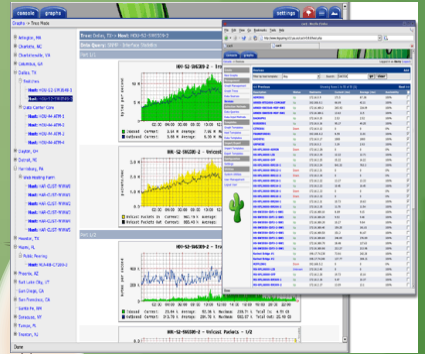
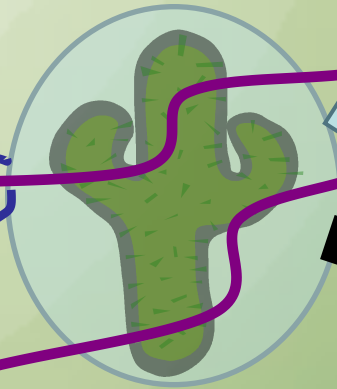
## 缺點

- 著重於功能的使用、操作介面單調
- 需要有程式或是資料庫的開發能力
- 除錯與功能、模組驗證

# CACTI 介紹-資料處理

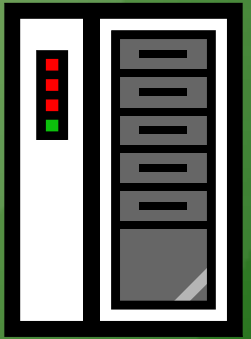
圖形輸出模組 Element

- 資料取得
- 資料儲存
- 資料輸出



SNMP / WMI  
Script (Command) / API

資料儲存模組



Devices

# CACTI 介紹-監控管理

網路設備

Windows主機

AIX

DB

LINUX

AP

網站

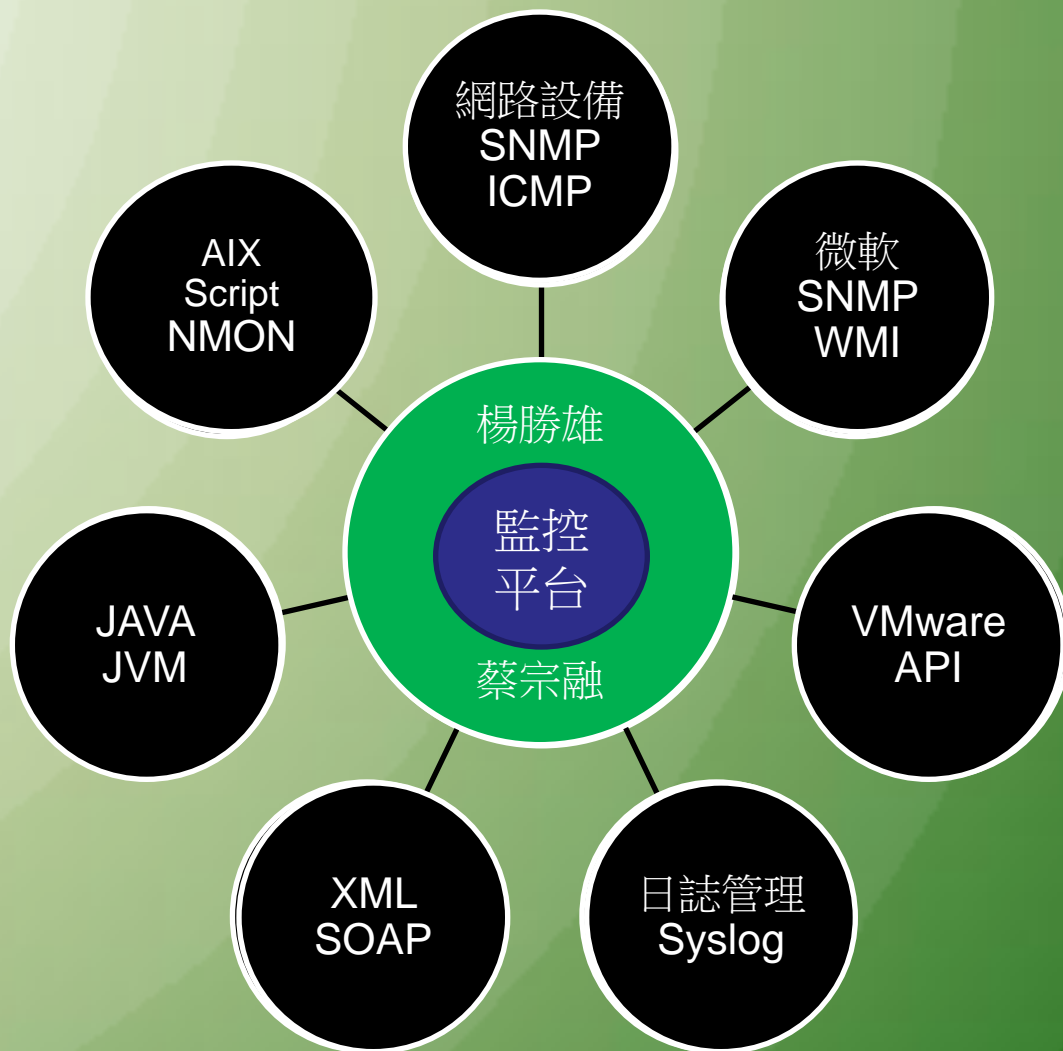
日誌系統

備份管理

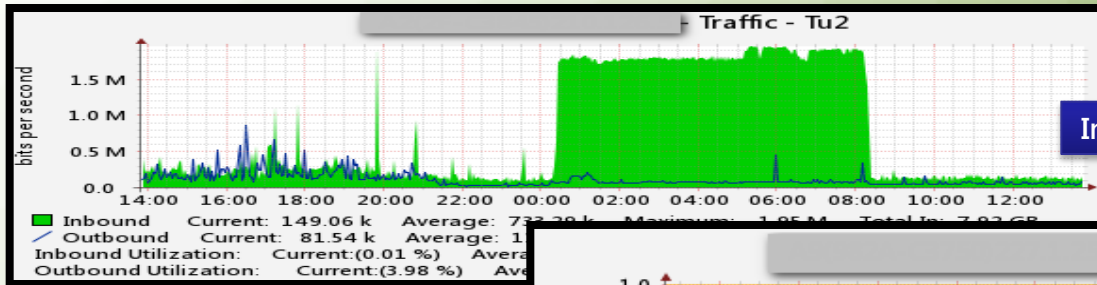
FLOW分析

VMware

...

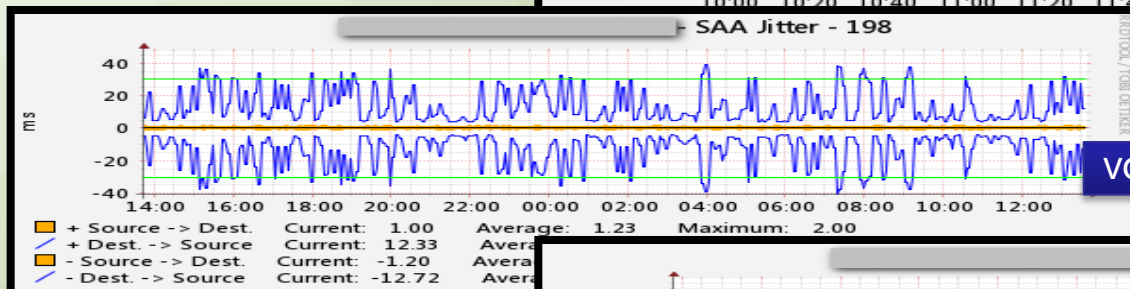
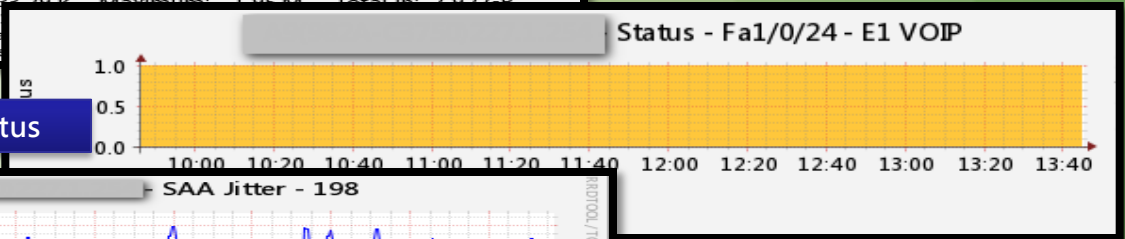


# 監控管理-NETWORK(SNMP-Script)



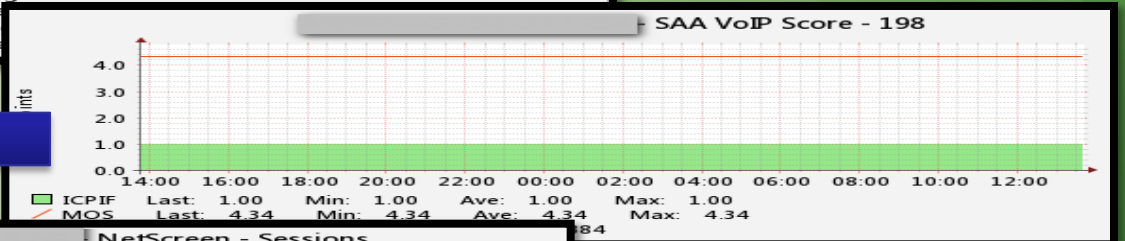
Interface Traffic

Interface Status

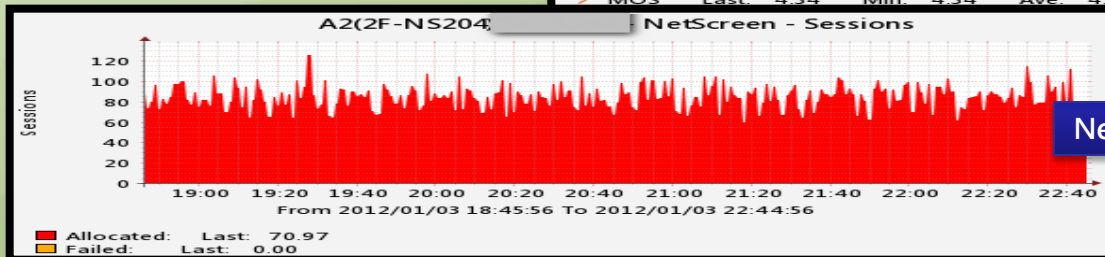


VOIP Jitter

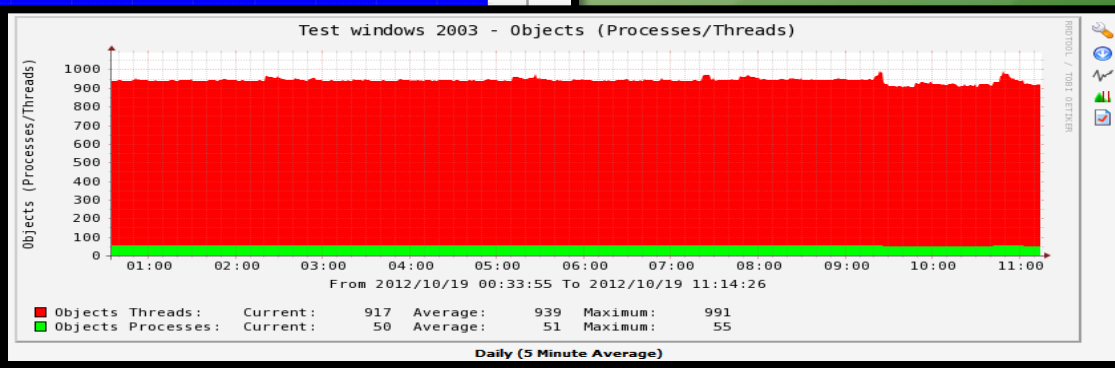
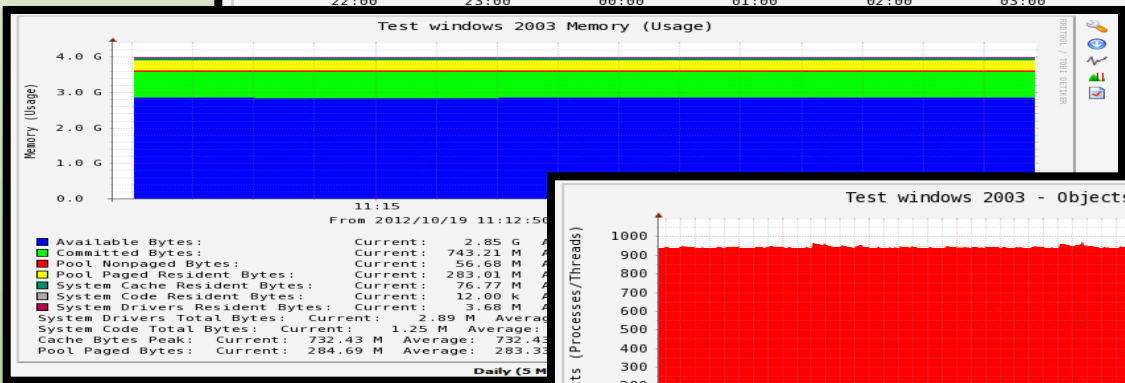
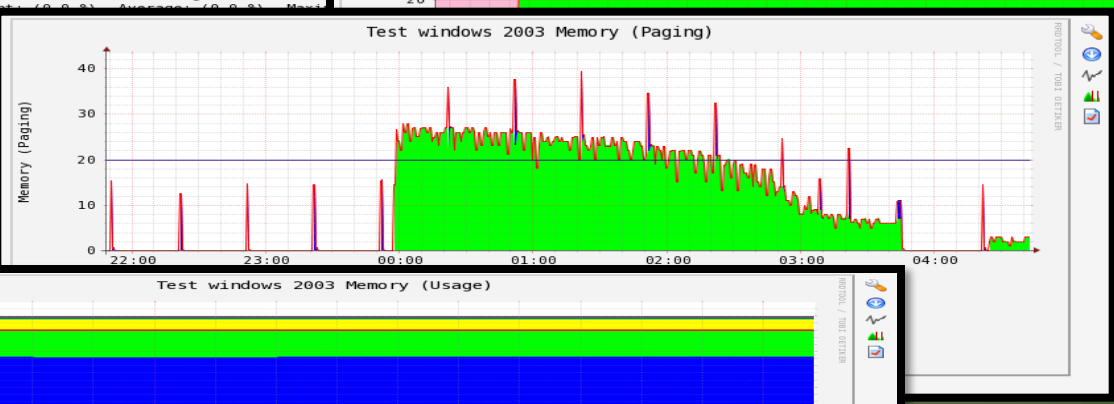
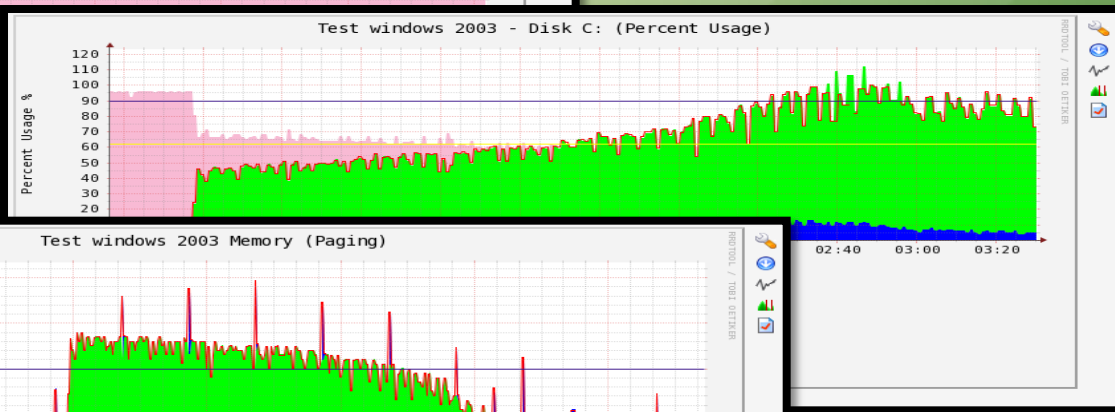
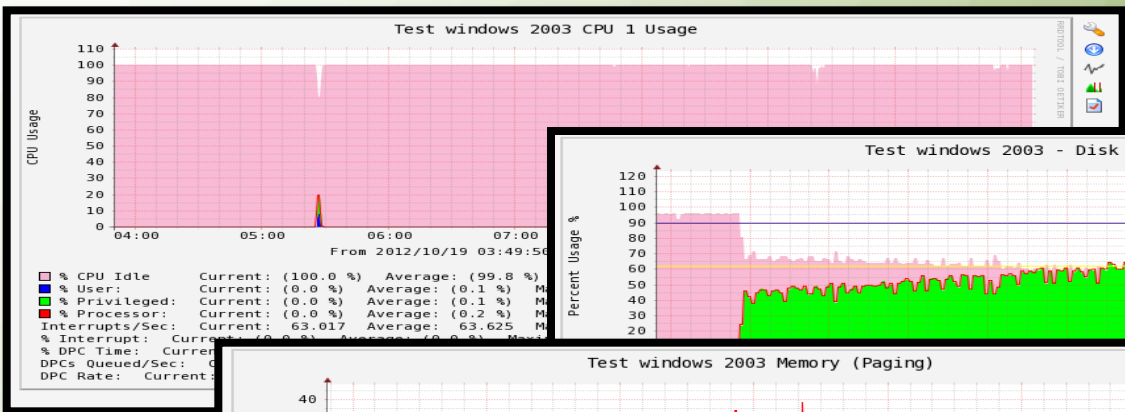
VOIP MOS



Net Screen Session



# 監控管理-Windows (Agent : Informant Non-Agent)



# 監控管理-AIX(NMON)

過去

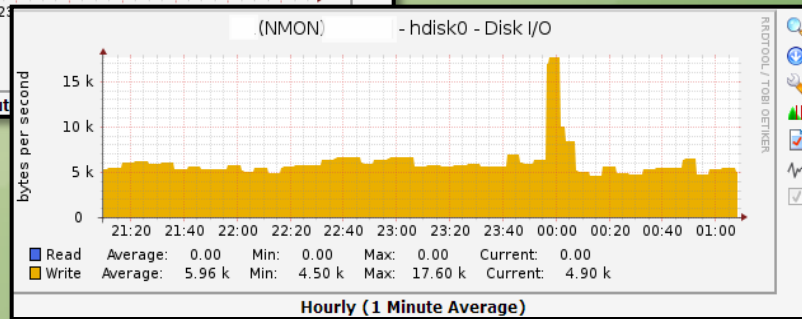
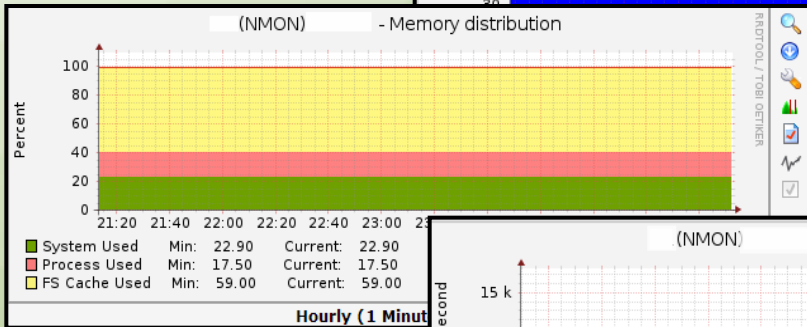
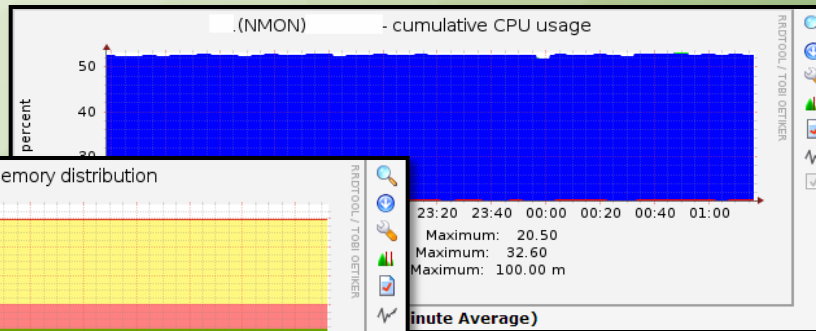


SNMP  
SSH Trust+Script

現在

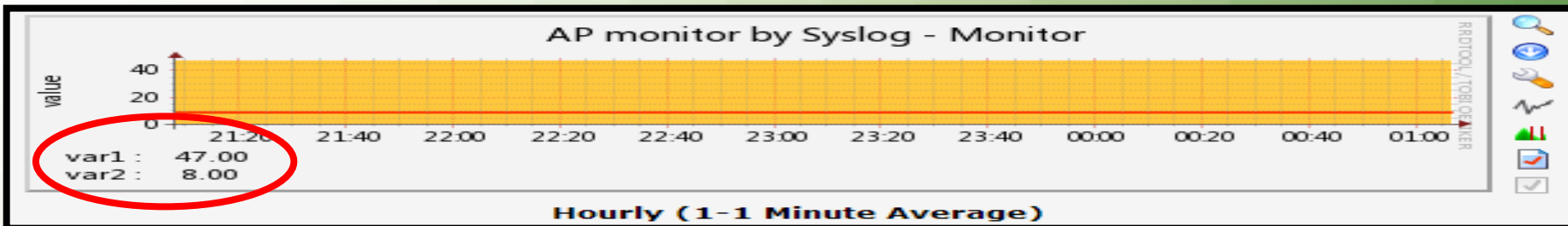


SNMP  
SSH Trust+IBM NMON





# 監控管理-AP & 網站監控



<< Previous Showing AP Alert Rows 1 to 4 of 4 []

Actions	Hostname	Date	Time	Message
A	cacti-223	2013-03-19	11:09:25	AP: user alert test log
A	cacti-223	2013-03-19	11:47:34	AP: user alert test log 2
A	cacti-223	2013-03-19	11:47:47	AP: user alert test log 3
A	cacti-223	2013-03-19	11:51:12	豬頭熊--愛玩

- **Response Time**

- 網頁開啟的時間

- **Port**

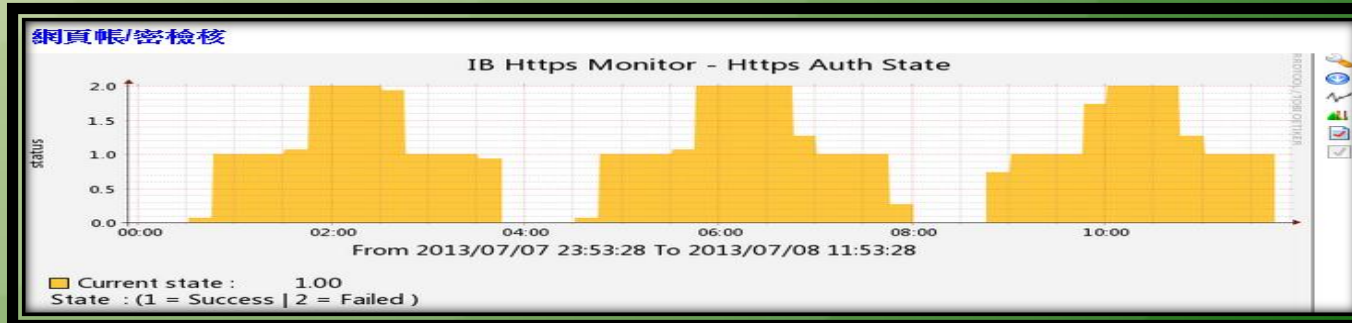
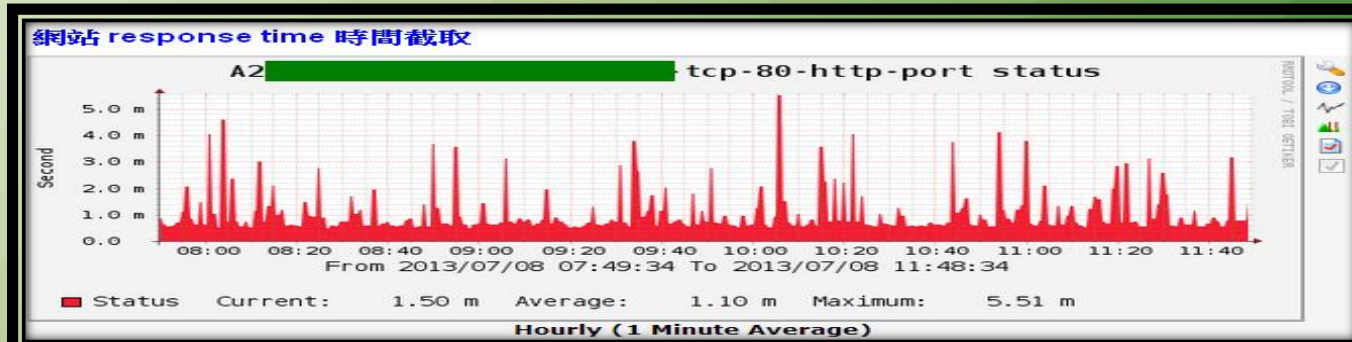
- TCP Port 80

- **認證管理**

- 1- 帳/密 ok
- 2- 帳/密 錯誤
- 0- 無傳回值

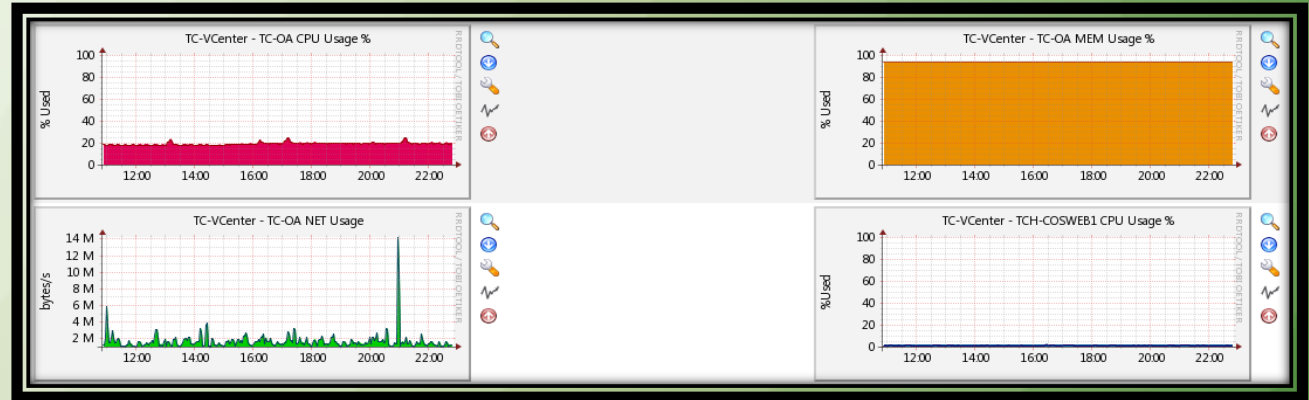
- **字串確認**

- 檢核特殊字串



# 監控管理-VMware Monitor

- VM HOST - CPU / MEMORY / NET / HD



- VM GUEST OS - CPU / MEMORY / NET / HD

The figure shows a screenshot of the vSphere SDK documentation and a disk usage chart:

- Documentation List:** A list of vSphere SDK documentation links. The link [vSphere SDK for Perl Utility Applications Reference](#) is highlighted with a red box. A blue arrow points from this link to the `questinfo.pl` entry in the table below.
- Utility Applications Reference Table:**

<a href="#">dsbrowse.pl</a>	Browses datastores and lists their attributes.
<a href="#">extractlog</a>	Extracts the vmware.log for any virtual machine.
<a href="#">fileaccess</a>	Performs put and get operations on datastore and configuration files.
<a href="#">questinfo.pl</a>	Lists and customizes attributes of a guest OS on a virtual machine.
<a href="#">hostdiagnostics.pl</a>	Extracts the specified log.
- Disk Usage Chart:** A chart titled "(TS)TC-SEPM01\_0 - Disk C:\ Usage" showing disk usage in bytes over time (12:00 to 10:00). The usage is consistently high, near 100%. The chart shows a total of 107.27 G and 99.44 G used, with a percentage used of 92.70%. The chart is labeled "Daily (5 Minute Average)".

# 警示與事件管理(一)- ACK欄位

Console -> Thresholds





Logged in as admin (Logout)

Thold & Hostdown Log





## Threshold Status

Template: All Host: All Status: All Rows: 20 Search:  Go Clear

<< Previous Showing Threshold Rows 1 to 1 of 1 [1] Next >>

Actions	Name	ID	Type	Trigger	Duration	Repeat	Warn Hi/Lo	Alert Hi/Lo	BL Hi/Lo	Current	Triggered**	Enabled
   	Cisco_switch - 5 Minute CPU [5 min_cpu]	1	High/Low	5 Minutes	N/A	Every Hour	-/-	3/-	N/A	5	yes	Enabled

<< Previous Showing Hostdown Rows 1 to 1 of 1 [1] Next >>

Actions	Description**	IP	Graphs	Data Sources	Status	Event Count	Hostname	Current (ms)	Average (ms)	Availability
   	Linux_Server		17	25	Down	53	Linux_Server	1.27	1.33	99.39

Alarm      Warning      Notice      Ok      Disabled

OP人員: admin 為這個 Thold 作確認(Ack)動作 => 新增

### 聯絡人

接到Ack訊息通知者的姓名,例如 小三 (此欄不得為空白)

### 通知內容

OP人員描述告知內容 (此欄不得為空白)

取消

登錄

# 警示與事件管理(二)-Total View

2013年5月7日

## Dashboard

19 11 47

### THOLD

1

N B9(981M-C28... traffic\_out T:0.01/- C:0.0117



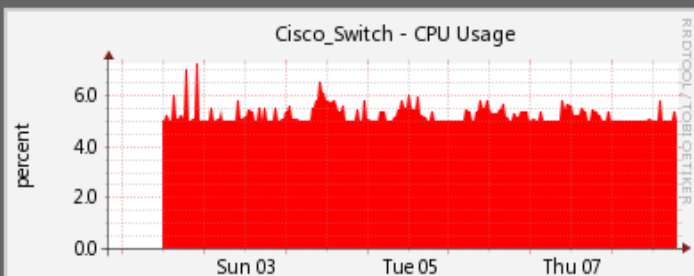
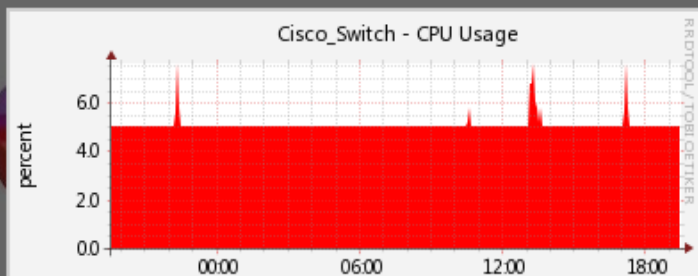
Cisco\_Switch - 5 Minute  
CPU [5min\_cpu]

### HOST DOWN

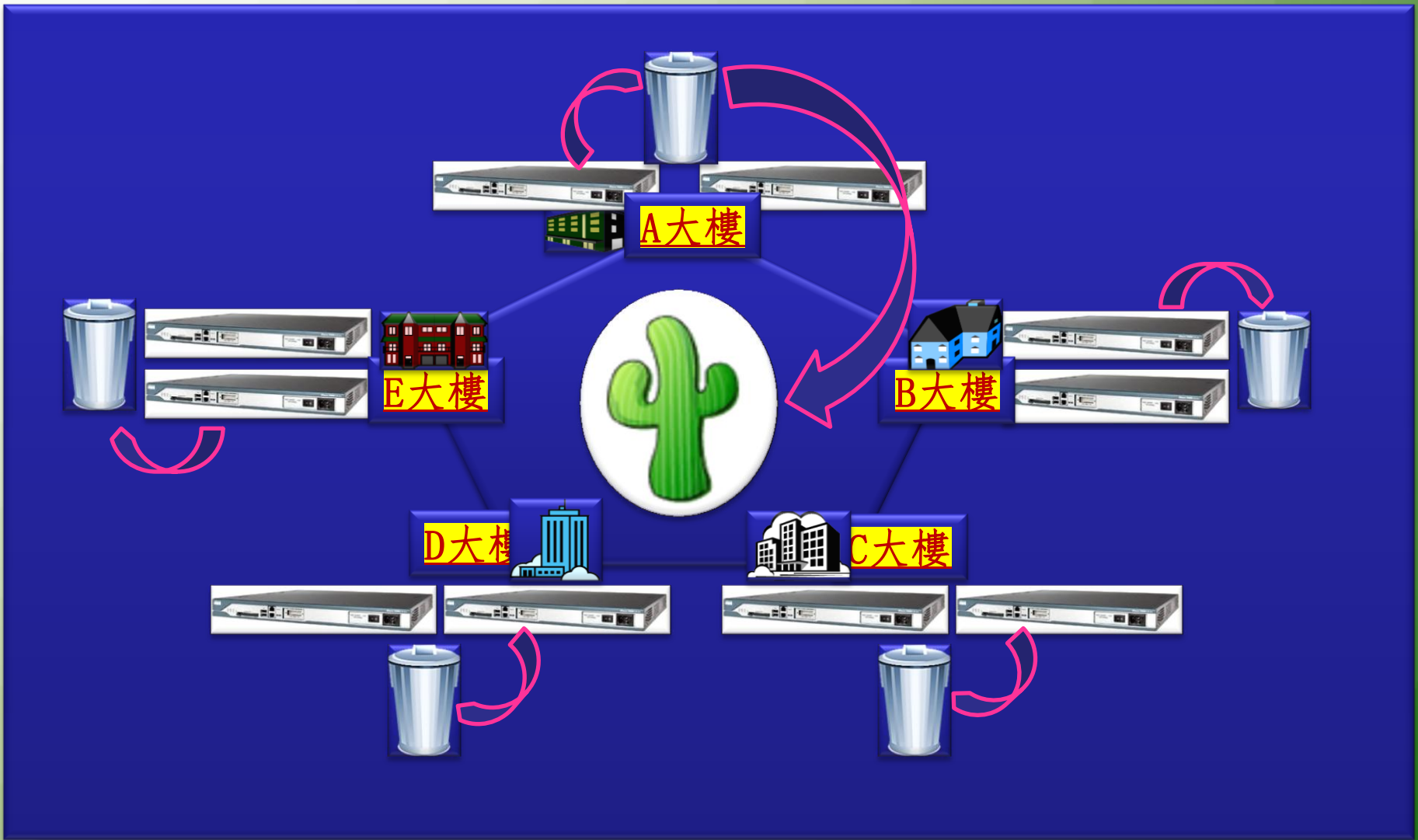
0



### RRD Graph



# 警示與事件管理(三)-Flow View



# 報表系統 (一)-Cereus Reporting

Graph Report Example



DSStats Report Example



Combined Availability Report

This screenshot displays a 'Test Standalone Report' with an 'Availability Report' table. The table lists various test components and their availability status over time.

Item	Availability	Percentage	Availability	Time
Test	Available	100%	10:00:00	10:00:00
Test	Available	100%	10:00:00	10:00:00
Test	Available	100%	10:00:00	10:00:00
Test	Available	100%	10:00:00	10:00:00
Test	Available	100%	10:00:00	10:00:00

Sample Report Template



Sample Report Template



Sample Report Template



# 報表系統 (二)-Reportit

**Reportit-New-01**

Data Source: Any Measurand: Any Search: 227.92.252    Summary

Type: Pie chart: 3D Rows: 15 Hi

---

**Data Source:** Inbound Traffic  
**Measurand:** Last Measured Value (LAST)

**HIGH TOP15 - Inbound Traffic - LAST**

Pos.	Description	Results [Bits/s]
1	10.227.92.252 - Traffic - 10.227.92.252 - Gi0/0	26.84 k
2	10.227.92.252 - Traffic - 172.25.12.150 - Gi0/1	13.42 k
3	10.227.92.252 - Traffic - 192.168.121.150 - Tu1	2.88 k
4	10.227.92.252 - Traffic - 192.168.124.150 - Tu4	2.46 k
5	10.227.92.252 - Traffic - 192.168.123.150 - Tu3	2.44 k
6	10.227.92.252 - Traffic - 192.168.122.150 - Tu2	2.43 k
7	10.227.92.252 - Traffic - Nu0	0
8	10.227.92.252 - Traffic - Gi0/3	0

Pos.	Description	Results [Bits/s]
1	10.227.92.252 - Traffic - 10.227.92.252 - Gi0/0	26.84 k
2	10.227.92.252 - Traffic - 172.25.12.150 - Gi0/1	13.42 k
3	10.227.92.252 - Traffic - 192.168.121.150 - Tu1	2.88 k
4	10.227.92.252 - Traffic - 192.168.124.150 - Tu4	2.46 k
5	10.227.92.252 - Traffic - 192.168.123.150 - Tu3	2.44 k
6	10.227.92.252 - Traffic - 192.168.122.150 - Tu2	2.43 k
7	10.227.92.252 - Traffic - Nu0	0
8	10.227.92.252 - Traffic - Gi0/3	0

<b>Title:</b> Reportit-CPU	<b>Runtime:</b> 0s
<b>Owner:</b> Administrator (admin)	<b>Sliding Time Frame:</b> enabled (last 1 day)
<b>Last Run:</b> 2013-05-20 16:05:53	<b>Scheduler:</b> disabled
<b>Period:</b> 2013-05-19 - 2013-05-19	<b>Auto Generated RRD list:</b> disabled

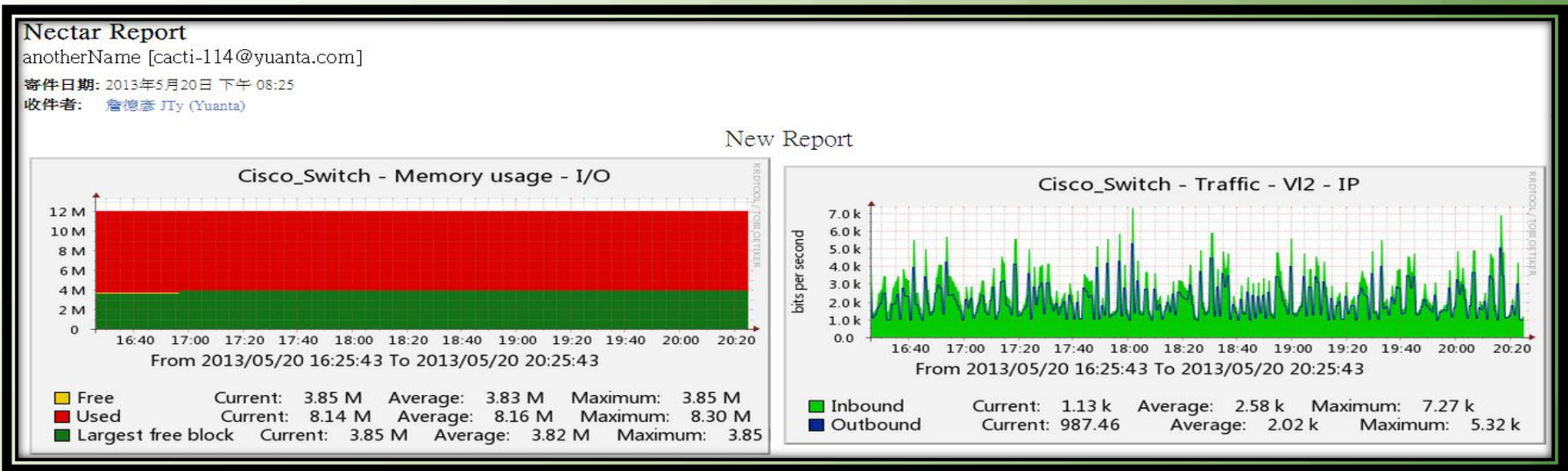
**Data Source:** 5min\_cpu  
**Measurand:** Average (AVG)

**HIGH TOP10 - 5min\_cpu - AVG**

Pos.	Description	Results [%]
1	10.227.130.254 - 5 Minute CPU	5.13
2	10.227.130.241 - 5 Minute CPU	4.24
3	10.227.92.252 - 5 Minute CPU	0

Pos.	Description	Results [%]
1	10.227.130.254 - 5 Minute CPU	5.13
2	10.227.130.241 - 5 Minute CPU	4.24
3	10.227.92.252 - 5 Minute CPU	0

# 報表系統 (三)-Nectar 與SLA Report



## 網頁/網站



- SLA 評估服務時，選擇的項目是 (參考價值)
- SLA 評估已考量線路施工？ 機器重開時間因素？
- 考量到備援與服務的關係？

服務正常機率

- 1 - Ping & SNMP ?
- 2 - Port listen 80 port ?
- 3 - 80 Port Response Time ?
- 4 - SNMP Apache & IIS ?
- 5 - Perl 確認網頁開啟時間 ?
- 6 - Perl 取回網頁內容字串 ?
- 7 - 模擬人工開啟網頁 ?

↓ 困難度



# SLA (補充)

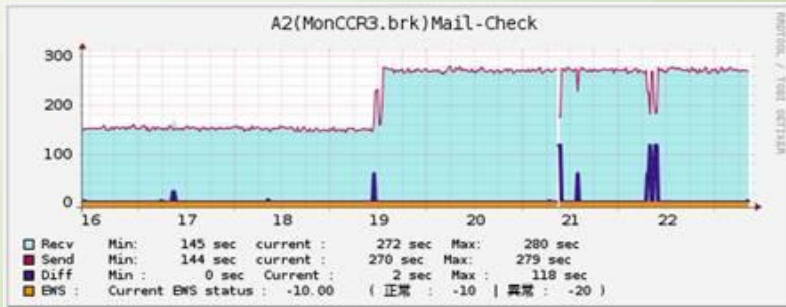


## 一個爭議思考的數值

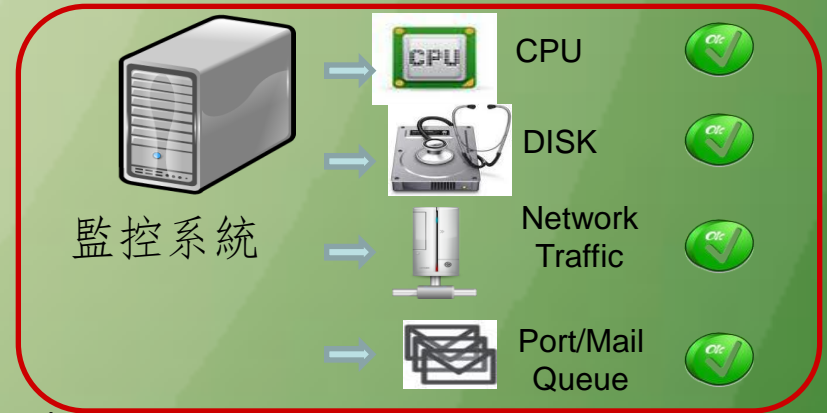
今天收mail 很慢



我看『Service』都是正常的喔!!



實際監控User收mail 的”感受”，於19日開始慢了150秒



User 由外部的主觀定義 Mail Service

IT 由內部主觀定義的 Mail Service

### 線路SLA計算-線路品質計算方式

- Ping 點對點漏封包比率? 取樣方式?
- 是否考量線路切換、維修、施工期間或是交易時間?
- 是否考量 CRC Error 對線路品質?
- 是否考量點對點封包回應的時間區間?

# 監控與CMDB

- **資料有價值**

- 了解 CI 維護會有成本
- 定義 CI 選擇類型與屬性
- 承認管理成本會隨著量的增加而加速增漲

- **準確最重要**

- 如果收集的資料是不可靠的，會比沒有更糟糕
- 資料的準確性如果低於某個程度則完全不可用

- **所有者**

- 識別誰在提供手工資料
- 必須清楚瞭解誰是責任人、資料是如何維護的

- **自動資產發現的各種來源**

- Agent
- SNMP/WMI
- 其它監控系統、日誌系統
- AP-API

1. 資料對不同使用者價值不同，但確一定有維護成本，需慎選監控項目
2. 警示若經常錯誤或誤發，比沒有更糟糕，思考如何降低告警次數提昇準確率
3. 制度無法建立產生的最大問題，就是經由人工建立的資料無法被確認
4. 自動化-減少人工採集資料成本-增加準確認。(有興趣了解、有開採的價值)

彭博說：「大學畢業生麻煩最大，除非他們是火箭科學家，或全年級頂尖人才。對於一般人，當水管匠實際上比上哈佛更好。」他說，當水管匠可以維持相當好的生活，又不必背負學生貸款，也不必擔心工作被外包到其他國家，或被電腦和自動化取代。

# Flow View 分析與管理

Filters | Listeners | Schedules

### Flow Filter Constraints

Saved Query:

Start Date: 08/27/2013 月/日/年

End Date: 08/27/2013 月/日/年

Source IP:

Dest IP:

Note: Multiple fields, are permitted in the fields above

### Report Parameters

Statistics:

Sort Field:

Listener: 大同 MPLS-1G

Start Time: hh:mm

End Time: hh:mm

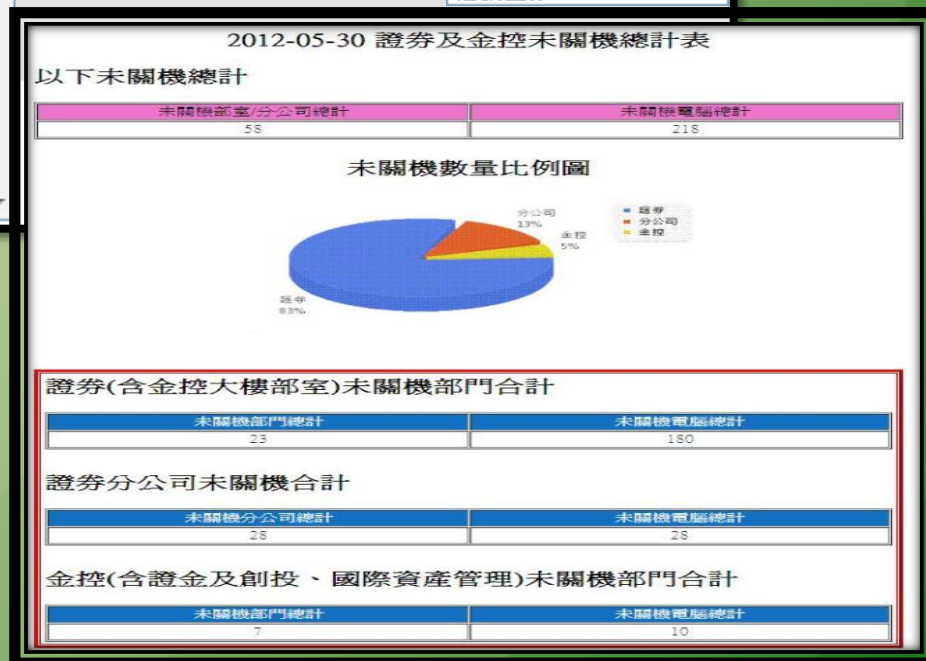
Source Port(s):

Dest Port(s):

Print Reports

- 證券分公司非交易
- 證券分公司交易
- 大同 FTTB\_NG
- 大同 MPLS-1G
- 承德 FTTB-10M
- 承德 MPLS-100M
- 信義金控 FTTB-50M
- 信義金控 MPLS-100M
- 信義金控 NEXUS
- 信義證券 FTTB\_NG
- 信義證券 MPLS

增加一個(Site)將參數送過去。回傳網頁結果  
FLOW 報表 HTML 下載



# 百變 CACTI



管理

圖形管理

樹狀圖管理

資料管理

使用者管理

設備管理

套件管理

排程管理

樣版

系統設定

主機維護

主控台

監控可以充滿樂趣



# 未來監控的方式

File comment: Australian Weather Weathermap

Created: 2010-11-11 11:14

監控來自人性，也可以充滿樂趣 !!!!



## Q&A



這個世界唯一不變的真理就是“變”  
“創新”來自於對人性的觀察