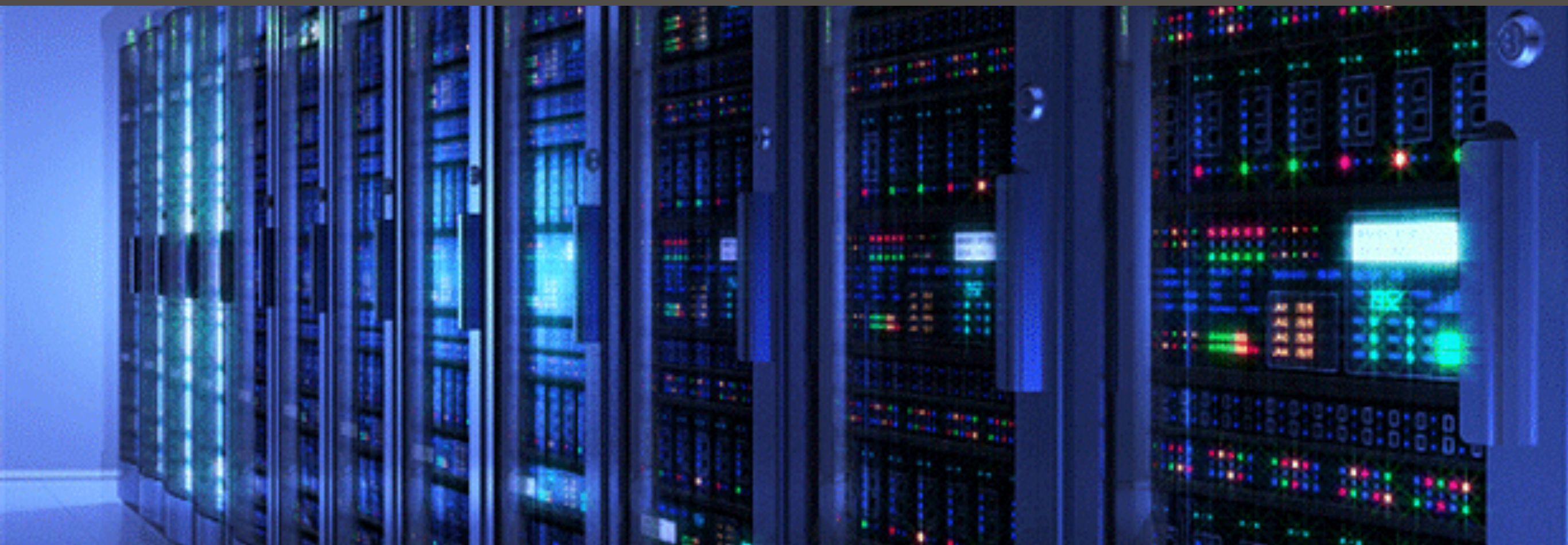




BiMAP 維運大數據分析

IT 系統效能暨資安維運管理

訊達電腦

陳柏霖
2017-06-23



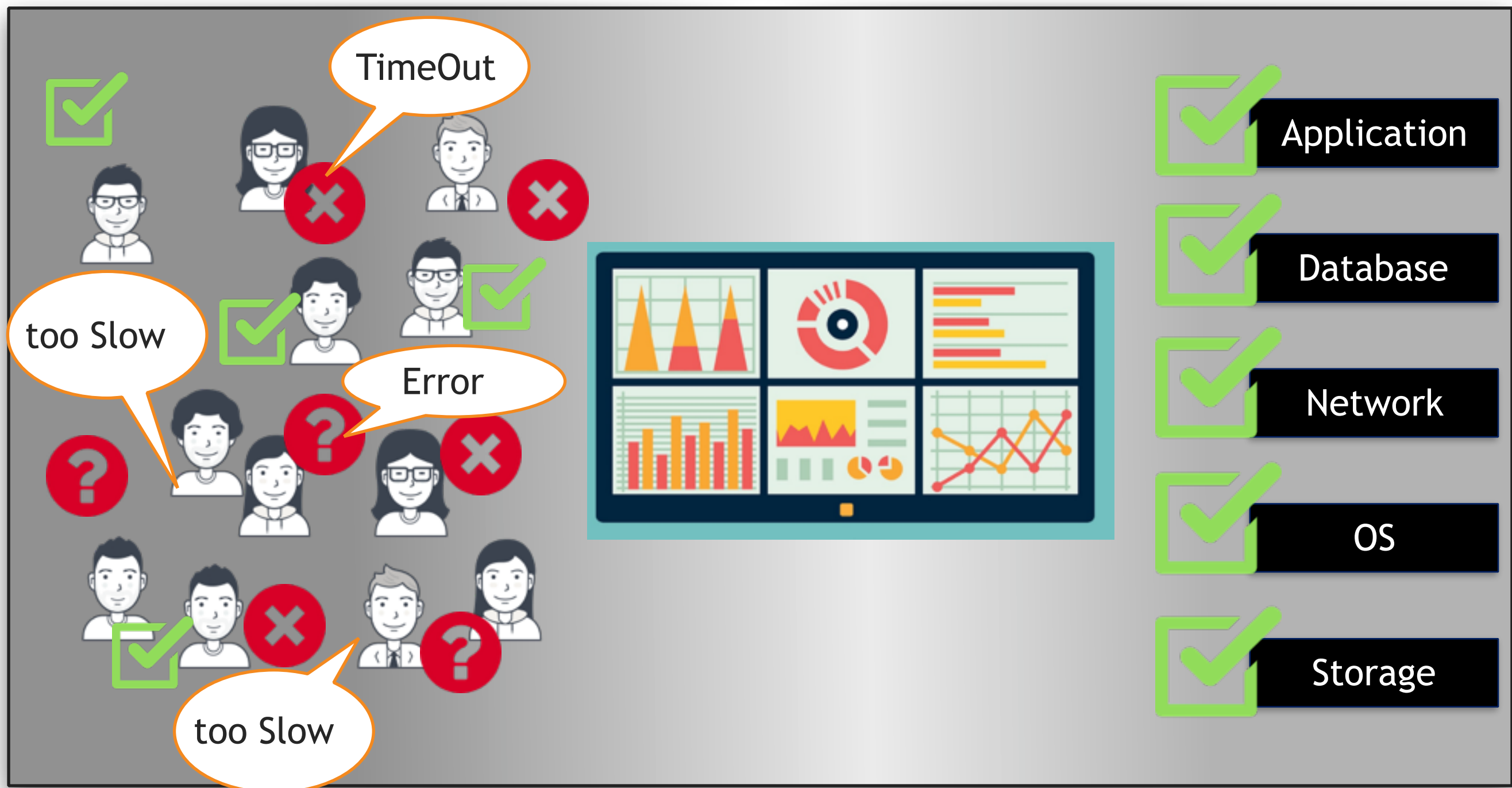
SLOW IS THE
NEW DOWNTIME



系統效能維運

報錯&&緩慢

是用戶最經常抱怨的問題



被動告知 && 頭痛醫頭 && 難以預防



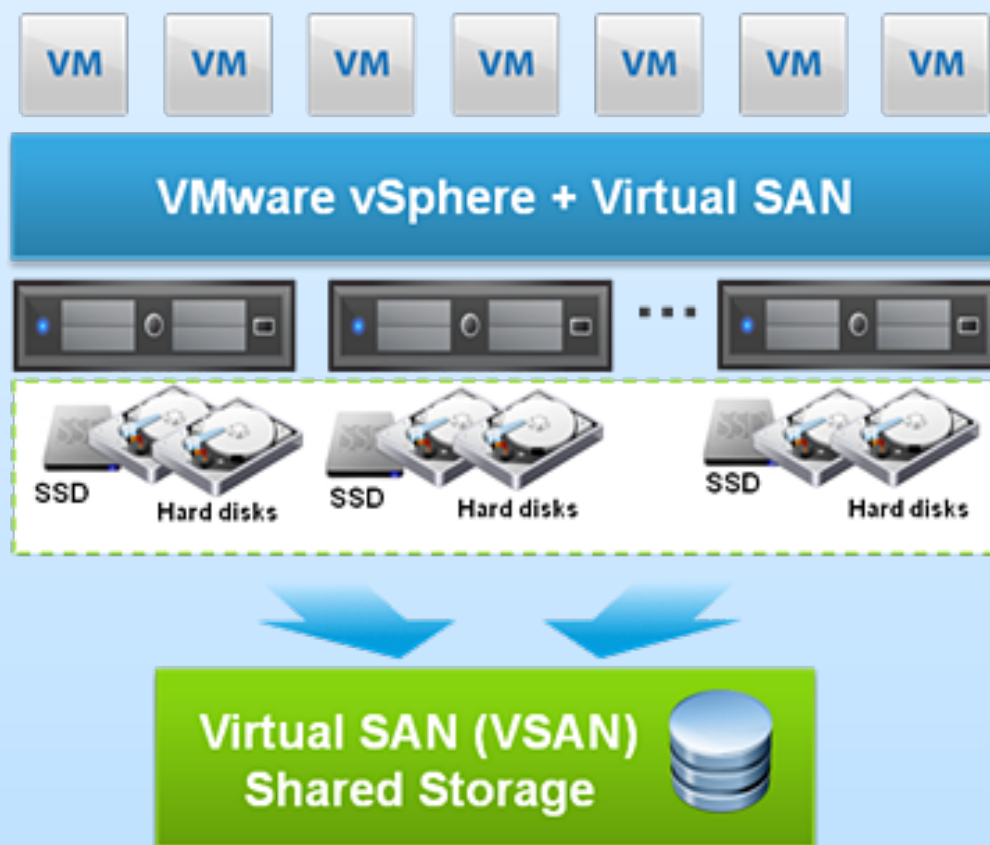
負載過大、用戶等待
運行緩慢、無法登入
應用當機、系統重啟

系統複雜 AND 關聯性高

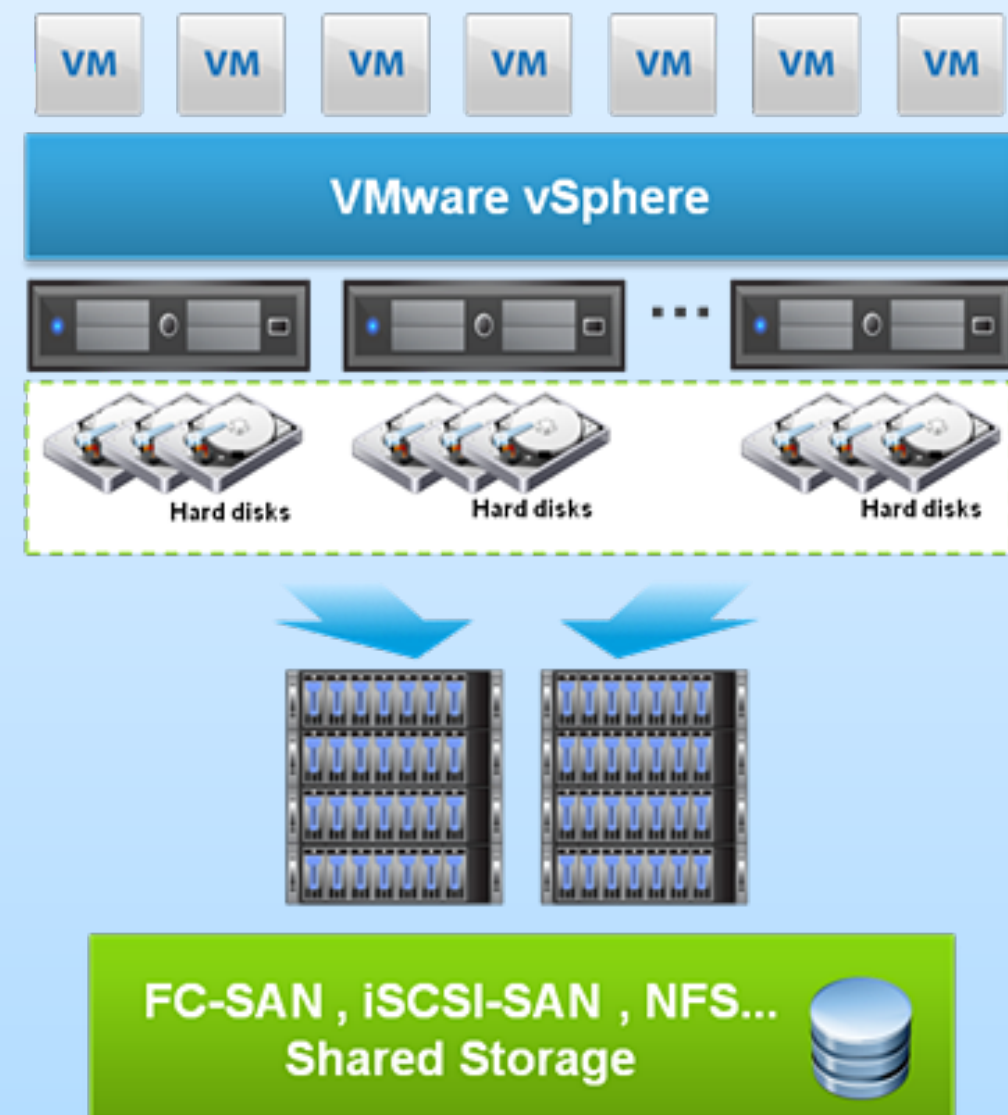
5

效能問題處理週期.....長

VSAN架構



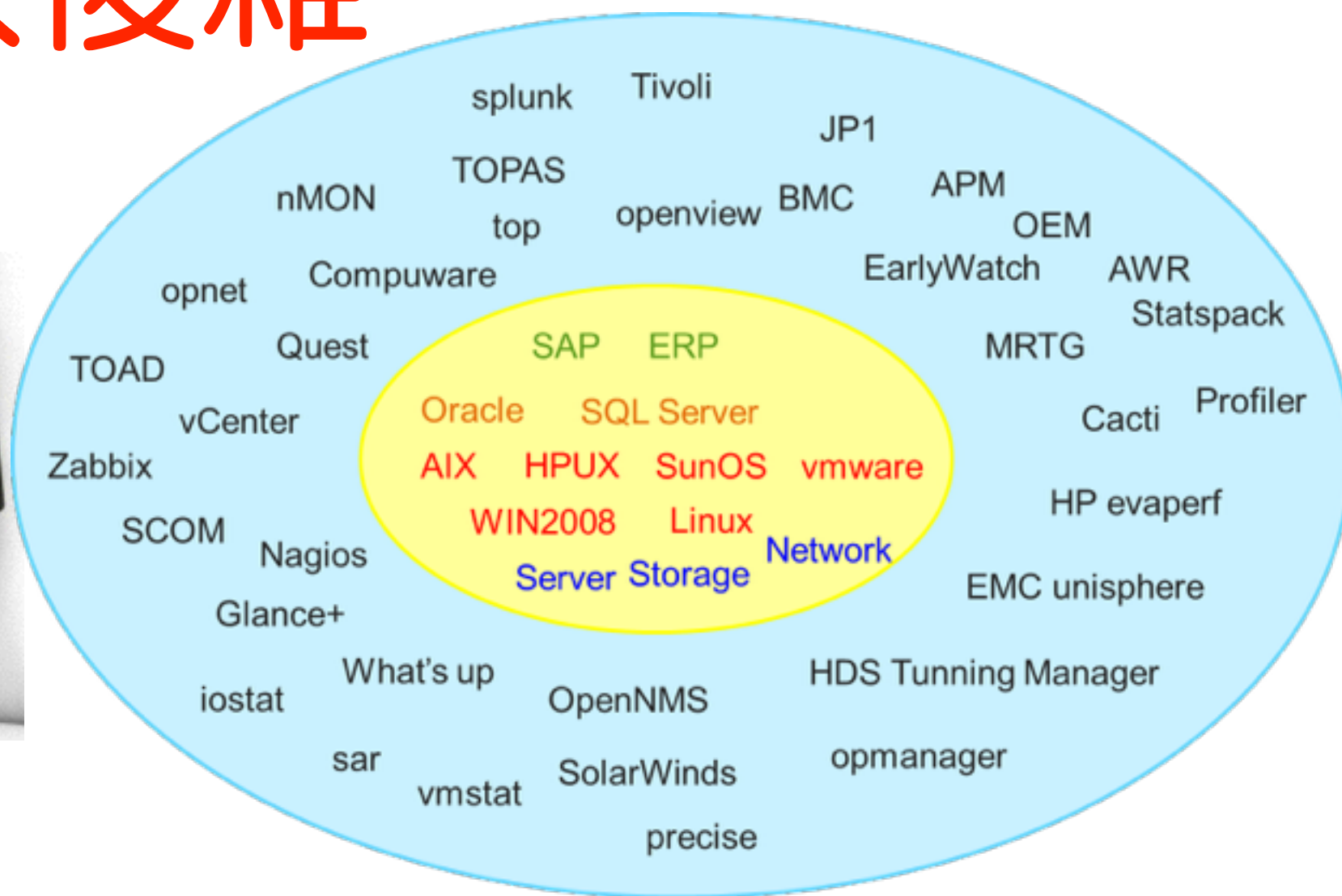
傳統架構



監控工具很多

6

太貴 or 太複雜



網路
維運&監控



主機
維運&監控



存儲
維運&監控



Database
維運&監控



Application
維運&監控



事前預防：提前發現問題、降低救火頻率
事中控制：縮短處理週期、提升服務品質
事後稽核：管理決策依據、提升投資效益



數據化管理



可視化管理



自動化管理

現代IT管理的進化



出問題

~~出問題~~

解決問題



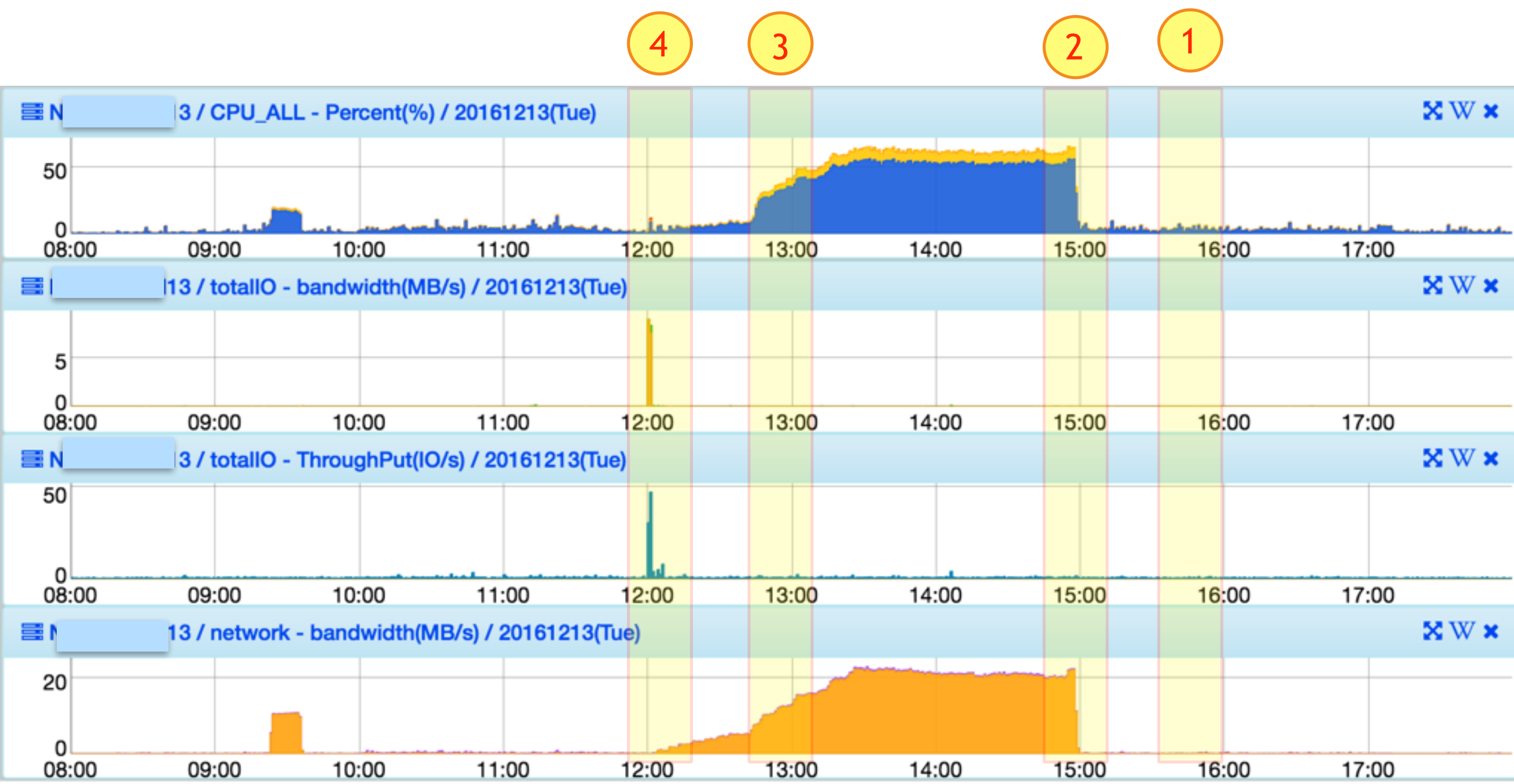
事中控制

用BiMAP 定位問題 Event Tracking

Step1: 發生問題的時間定位

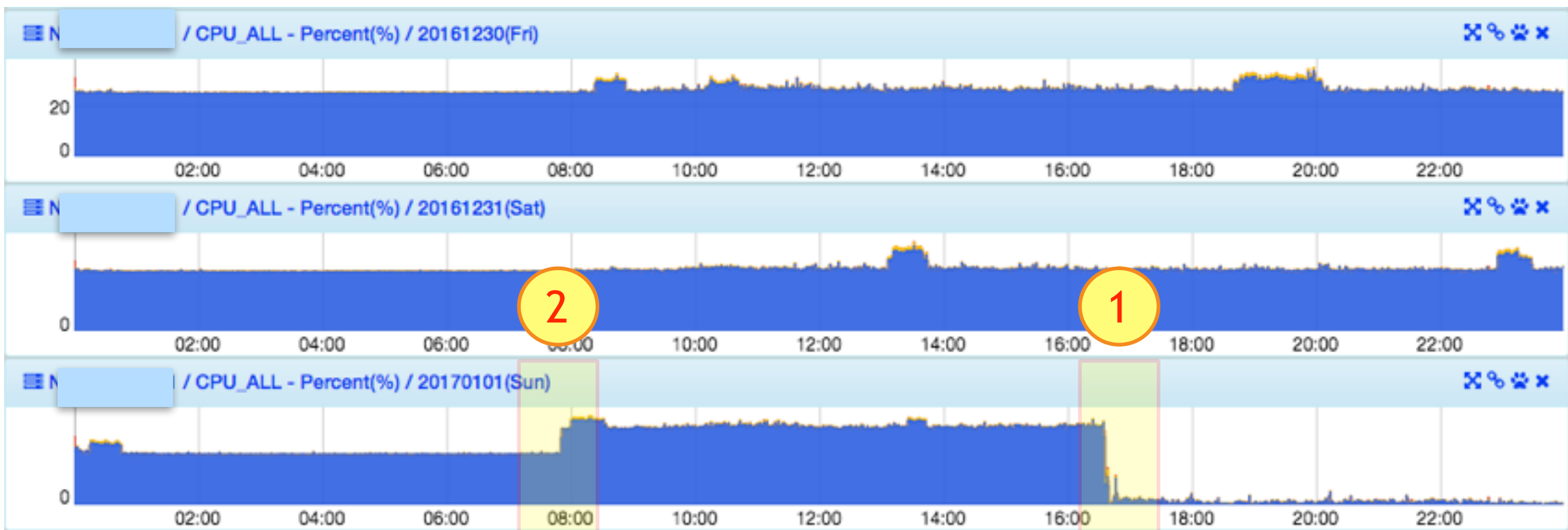
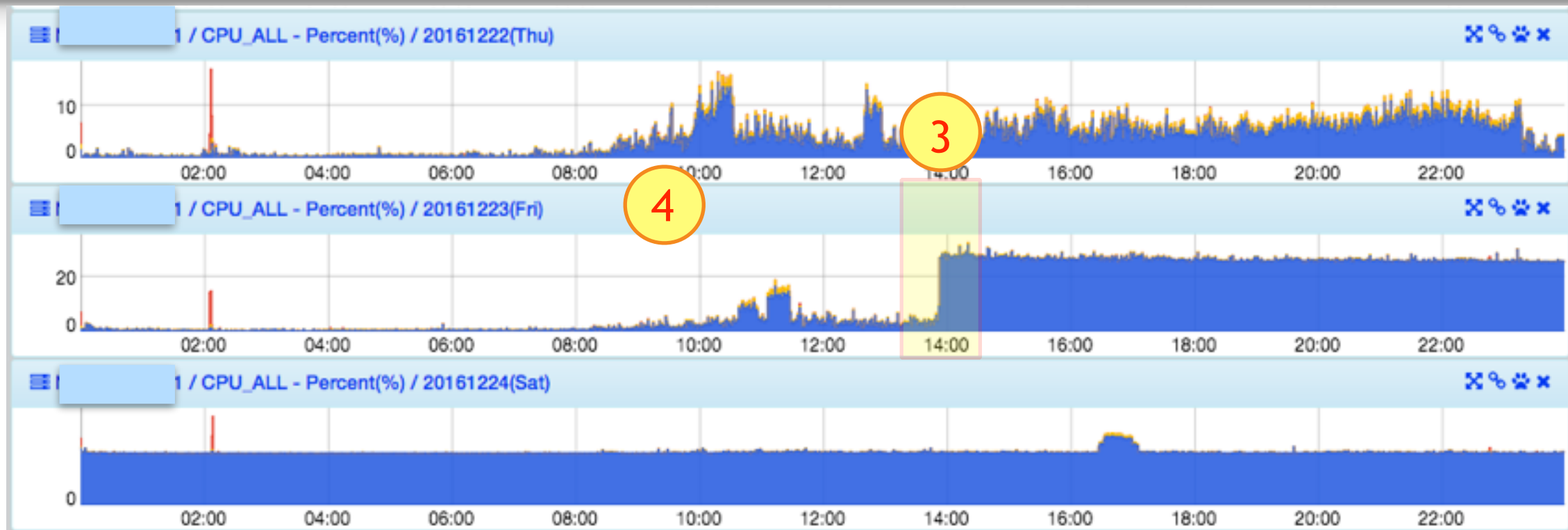
10

場景一：幾小時前產生異常



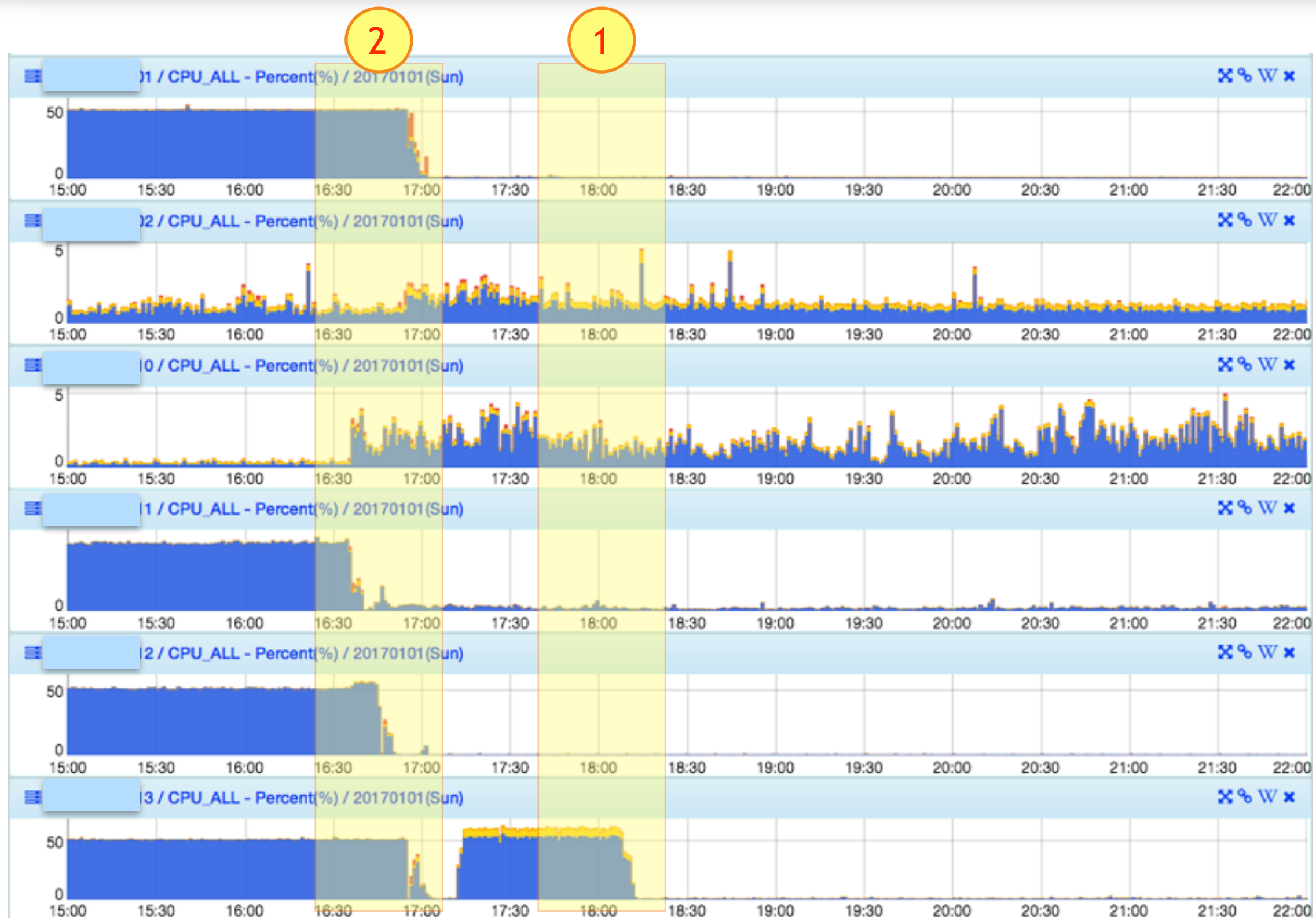
場景二：多天前產生異常

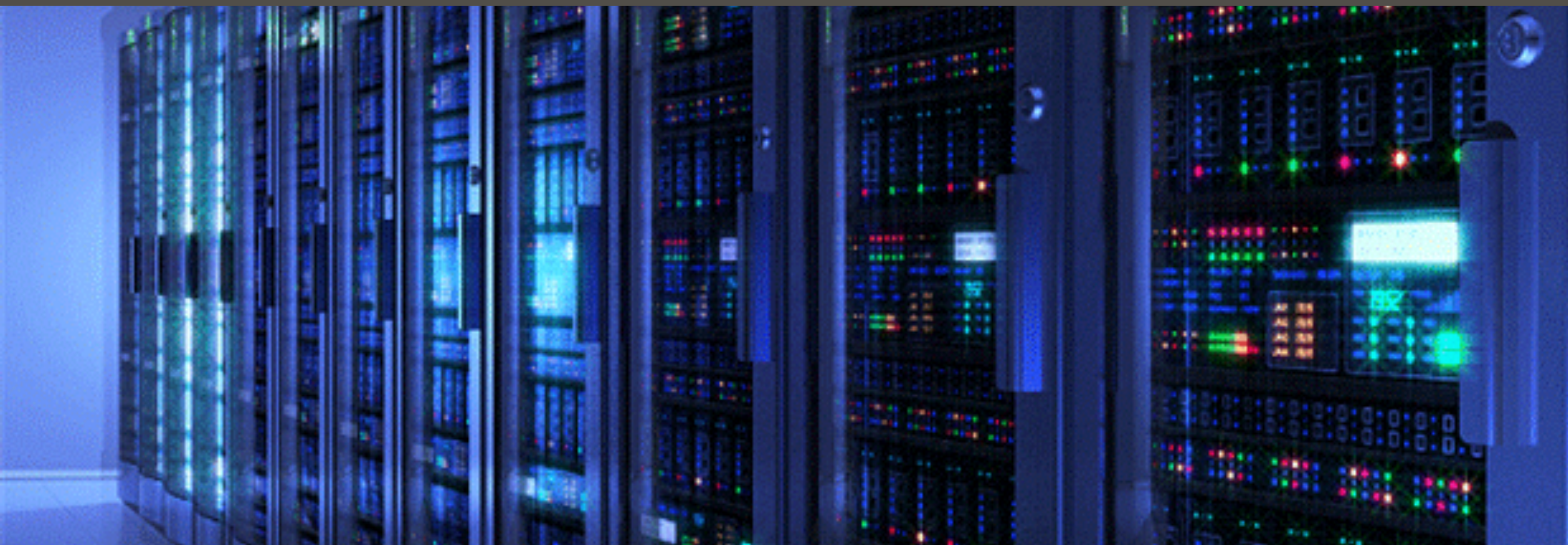
11



場景三：多台同時產生異常

12





利用大數據分析

1. 創建系統預測模型，有效預防故障產生
2. 準確判斷異常原因，提高問題處理效率

BiMAP



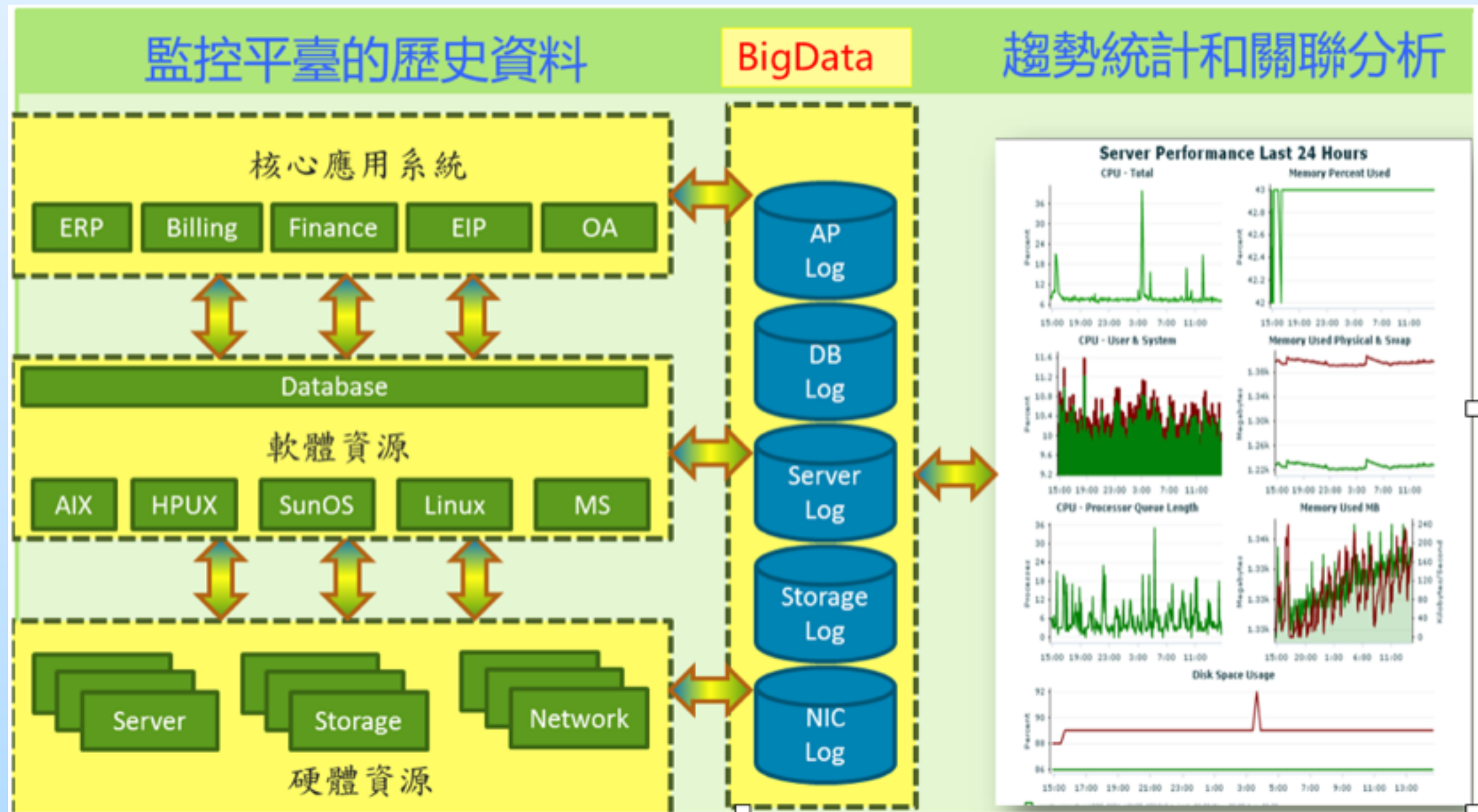
事前預防

利用BiMAP 大數據分析
提前排查系統隱憂

利用大數據分析，落實預防管理模式

15

- 通過統一收集IT系統的主機、存儲、網絡、OS、DB、AP等相關LOG，利用BIG DATA 的挖掘分析技術，建立關鍵指標的趨勢統計和關聯分析，創建異常前兆的識別模型。



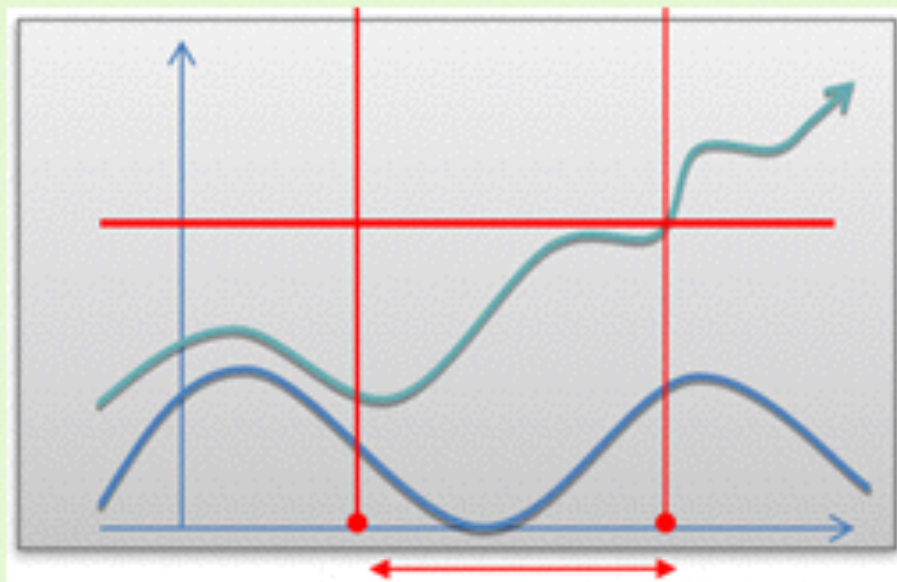
及時判別異常的前兆現象

16

有效的預警機制，來自異常發生前的前兆識別

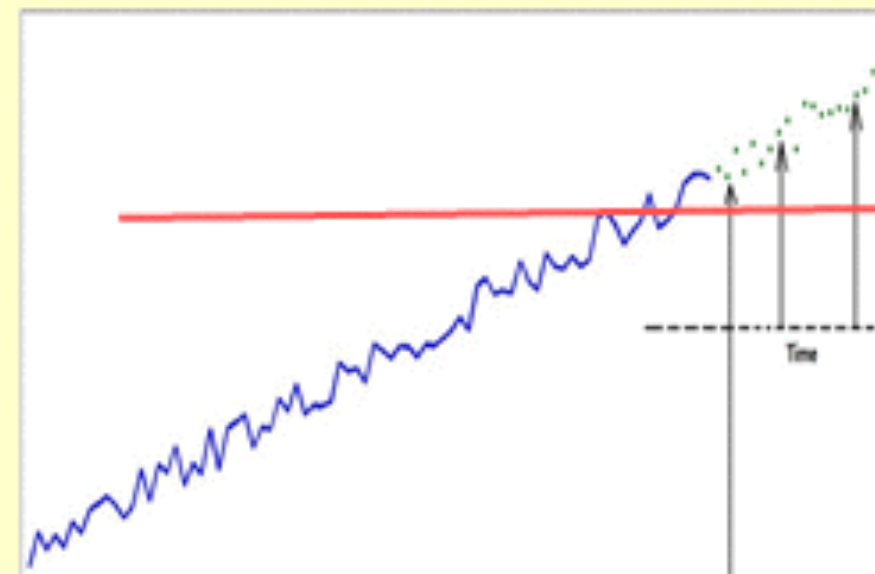
關鍵指標的偏離關係分析 提出預警

經由多個不同KPI的偏離關係分析，在實際業務受到影響之前，發佈預警通報，及時處理問題。



關鍵指標的變動趨勢分析 發佈預警

通過關鍵指標KPI的變動趨勢分析，建立預警模型，辨識出即將達到告警閾值的前兆現象。

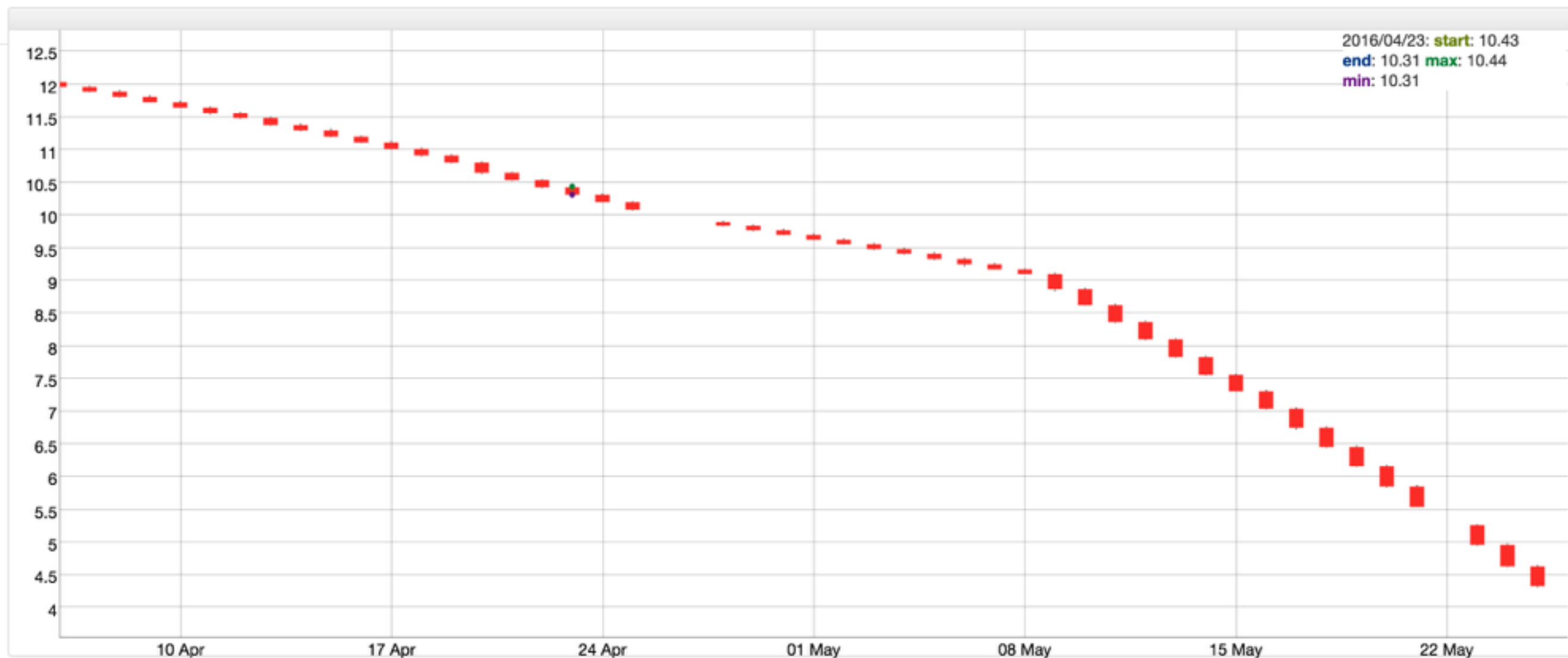


利用BiMAP K線圖 提前發現問題

17

Storage Capacity Plan Trend Analysis

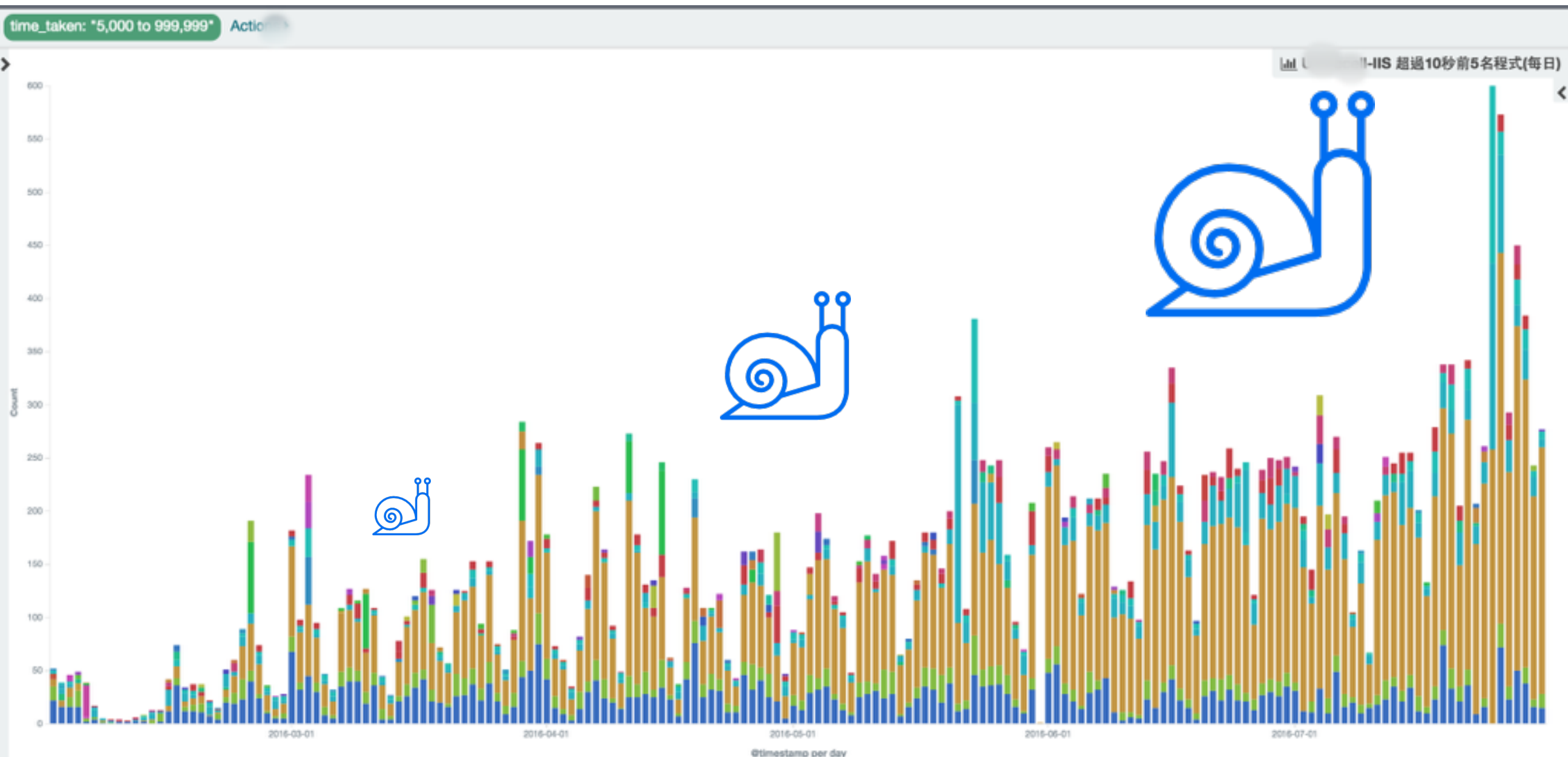
DISK_D - % Free Space /per day



利用BiMAP 預測系統支撐力

18

從歷史Log 取得趨勢分析



利用BiMAP 量化軟體品質指標

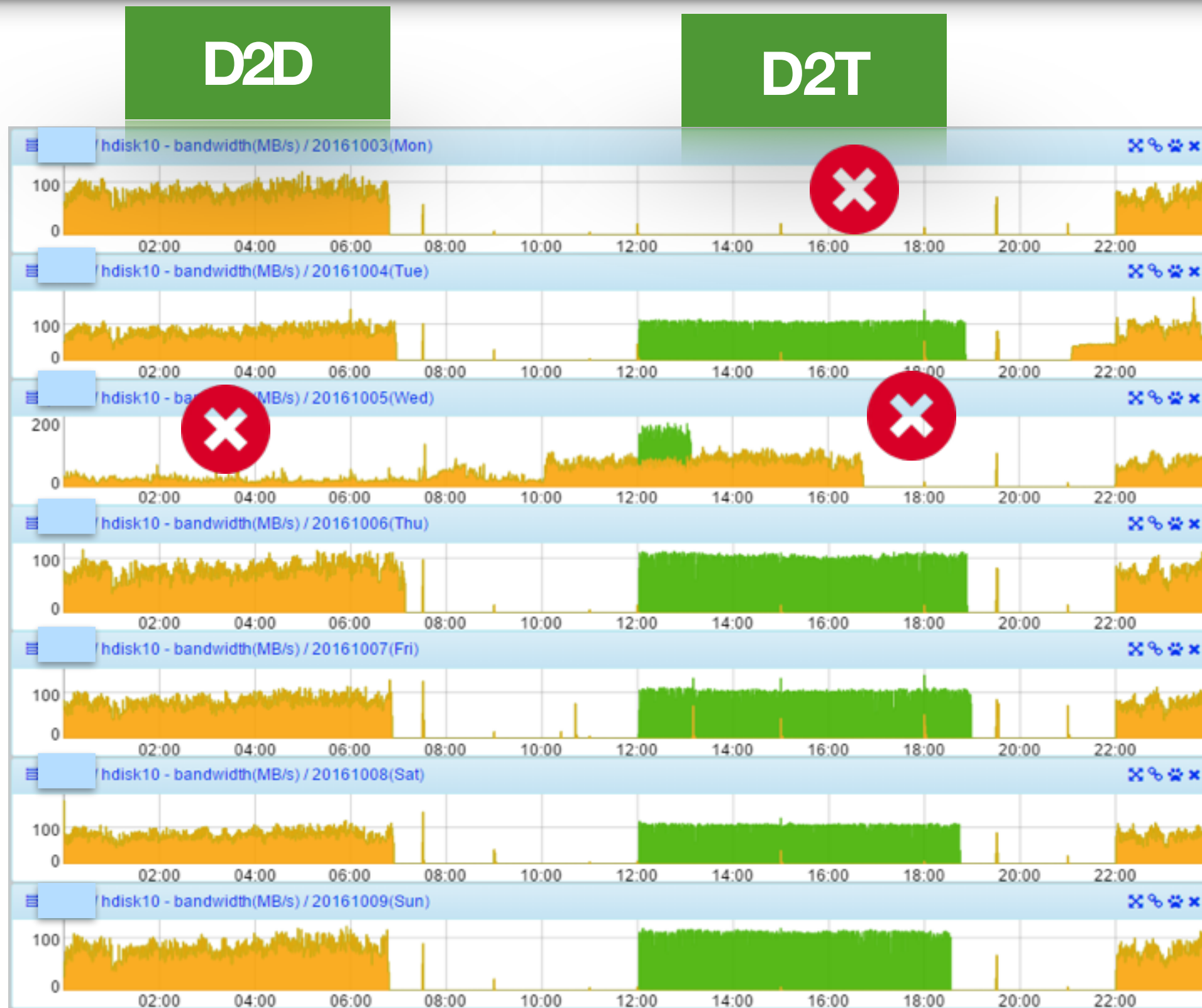
19

量化 報錯&&緩慢 指標



利用BiMAP 構建系統模型

20



利用BiMAP 實施效能規劃



提升系統改造的成功率
規避改善不如預期的風險

- 設備採購後，是否一定可以解決原來的問題？
- 如何規避改善不如預期效果的風險？
- 如何有效評估升級方案的投資效益？

需要多少預算？

需要更高規格的設備？

採購最好設備？



如何保證升級後的改善效果？

如何評估廠商提供產品的技術指標？

是否對症下藥？

系統效能維運

22



高峰期運行緩慢

準確定位造成系統緩慢的根源，提昇效能問題的處理效率，並提高應用高峰期設備資源的最大利用率。



軟體品質驗收

提供系統上線前軟體品質的驗收方案，提昇應用系統的穩定性，降低系統上線後才發現產生報錯和緩慢的風險。



異常服務中斷

提前挖掘系統隱患並持續追蹤，落實主動維運，提前排除可能造成服務中斷的異常，降低被動救火的次數。



最大支撐力預測

通過歷史日誌的統計分析，建立關鍵指標的趨勢統計預測，避免因業務和資料增長後，產生的系統當機風險。



壓力測試效能評估

評估測試環境下的各種壓測場景的效能瓶頸分析，並預測生產環境的資源最大的應用支撐力。

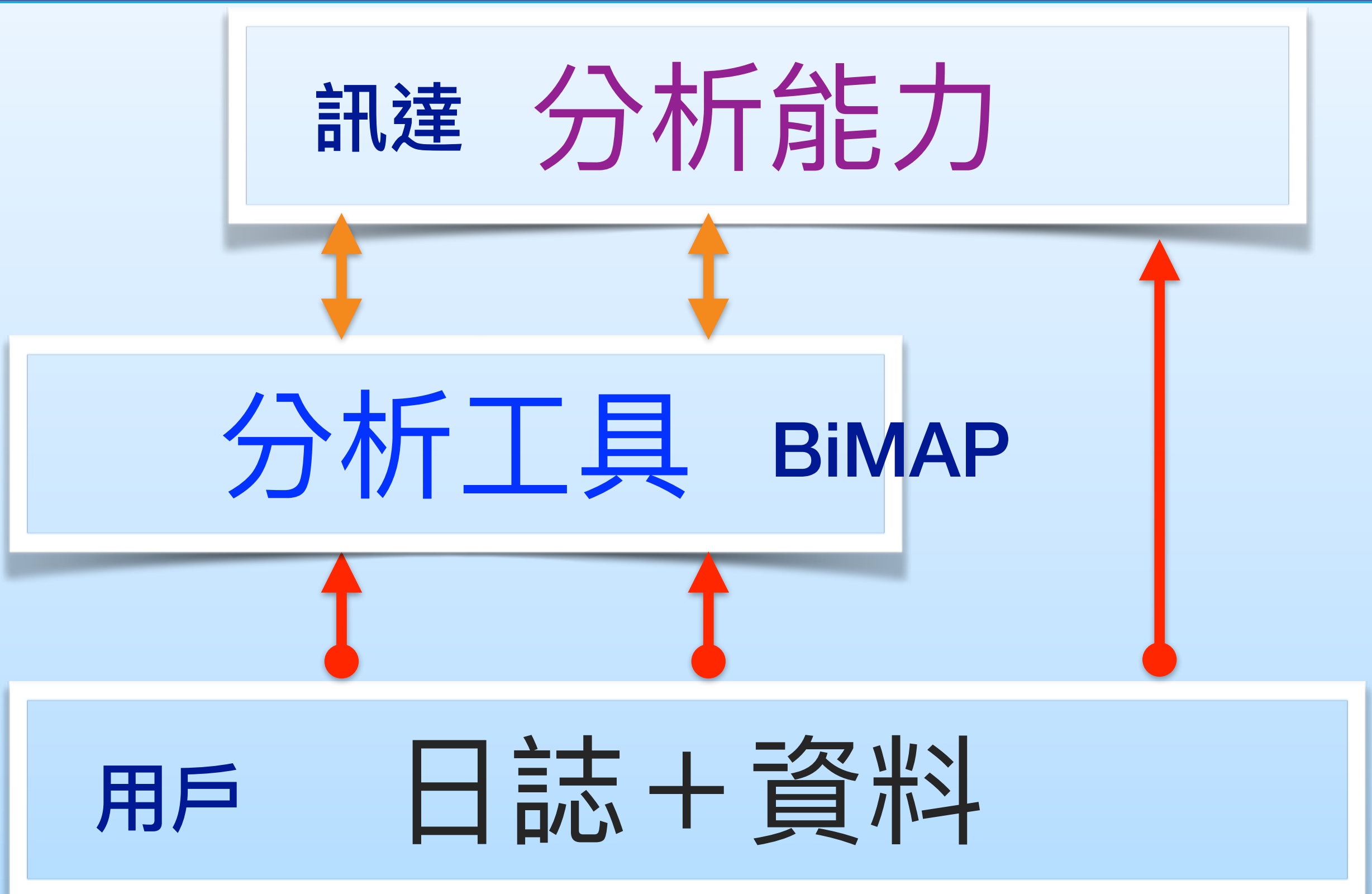


升級改造採購依據

量化系統實際的應用需求，提供軟、硬體的採購依據，提供IT 投資效益，避免設備升級後改善不如預期的風險。

大數據分析的關鍵三因素

23

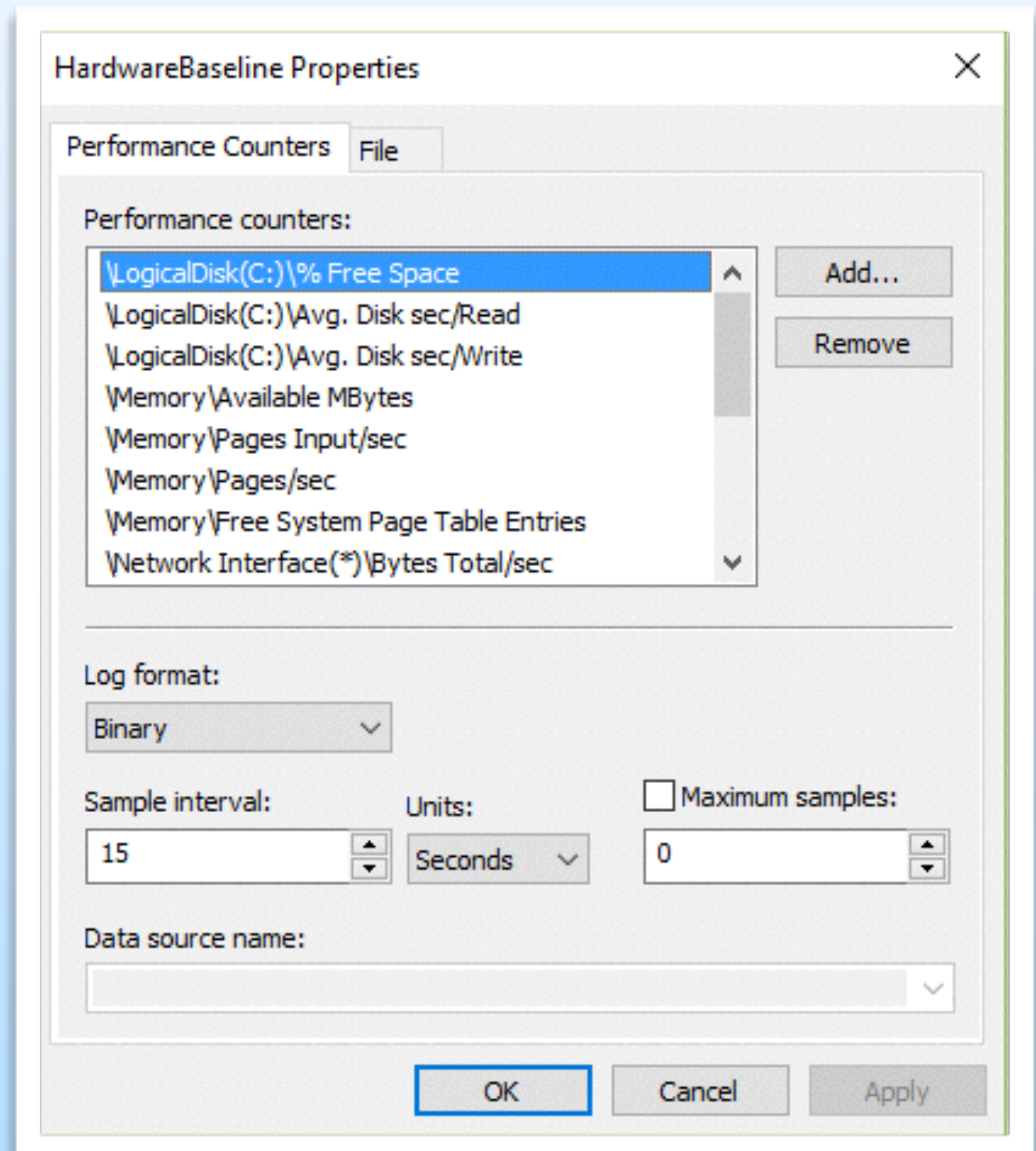


Window 效能log - logman

24

Win 效能監控工具

1. CPU 負載
2. 多核CPU負載
3. 內存負載
4. 虛擬內存
5. Disk 負載
6. MPIO 負載
7. Network 負載
8. Disk 容量
9. process 負載

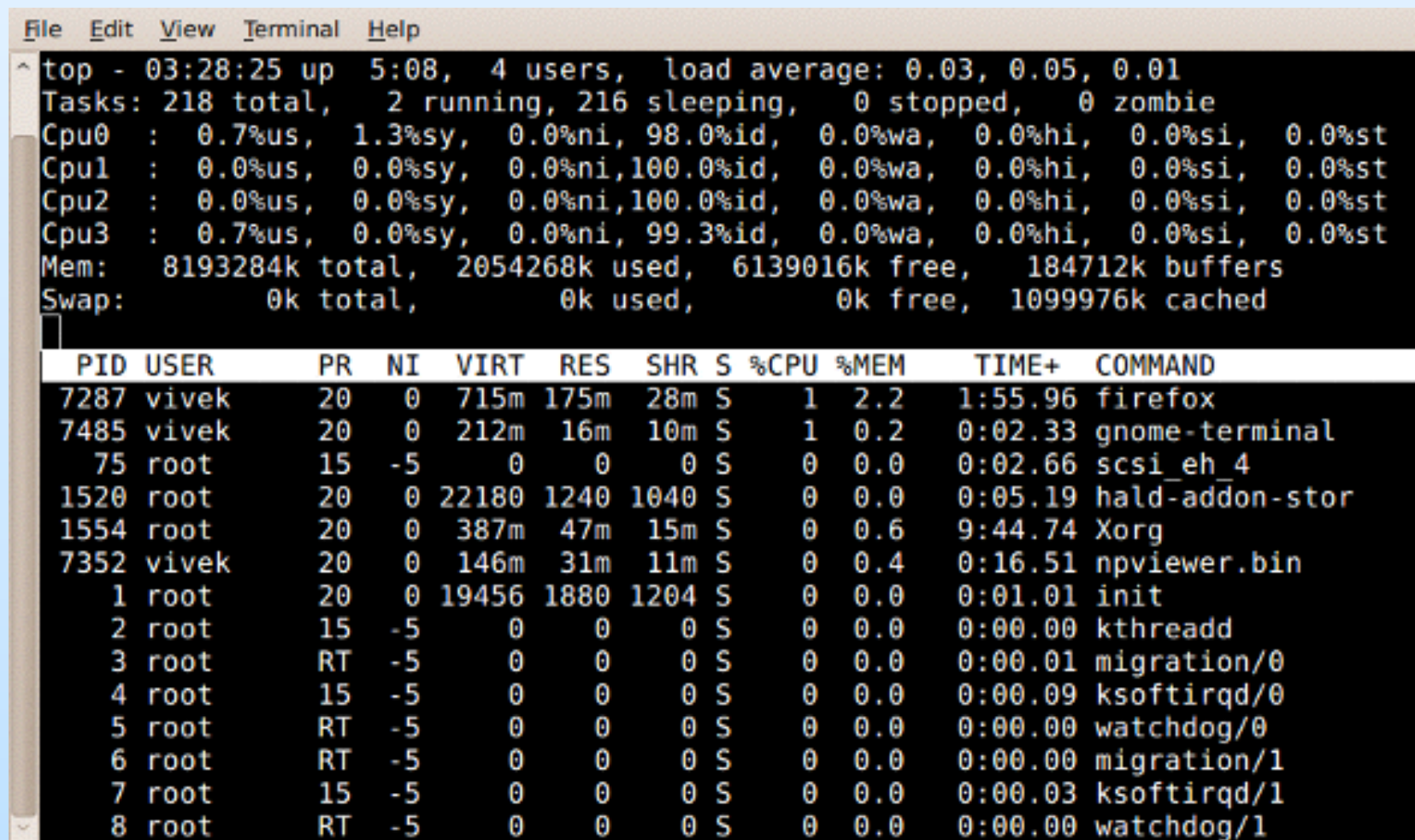


Linux 效能log - Sysstat

25

Linux 效能監控工具

1. CPU 負載
2. 多核CPU負載
3. 內存負載
4. 虛擬內存
5. Disk 負載
6. MPIO 負載
7. Network 負載
8. Disk 容量
9. process 負載



```
File Edit View Terminal Help
^top - 03:28:25 up 5:08, 4 users, load average: 0.03, 0.05, 0.01
Tasks: 218 total, 2 running, 216 sleeping, 0 stopped, 0 zombie
Cpu0 : 0.7%us, 1.3%sy, 0.0%ni, 98.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu1 : 0.0%us, 0.0%sy, 0.0%ni, 100.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu2 : 0.0%us, 0.0%sy, 0.0%ni, 100.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Cpu3 : 0.7%us, 0.0%sy, 0.0%ni, 99.3%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Mem: 8193284k total, 2054268k used, 6139016k free, 184712k buffers
Swap: 0k total, 0k used, 0k free, 1099976k cached

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 7287 vivek    20   0  715m 175m  28m  S   1    2.2   1:55.96  firefox
 7485 vivek    20   0  212m  16m  10m  S   1    0.2    0:02.33  gnome-terminal
   75 root      15  -5     0     0     0  S   0    0.0    0:02.66  scsi_eh_4
1520 root      20   0 22180 1240 1040  S   0    0.0    0:05.19  hald-addon-stor
1554 root      20   0  387m  47m  15m  S   0    0.6    9:44.74  Xorg
7352 vivek    20   0  146m  31m  11m  S   0    0.4    0:16.51  npviewer.bin
    1 root      20   0 19456 1880 1204  S   0    0.0    0:01.01  init
    2 root      15  -5     0     0     0  S   0    0.0    0:00.00  kthreadd
    3 root      RT  -5     0     0     0  S   0    0.0    0:00.01  migration/0
    4 root      15  -5     0     0     0  S   0    0.0    0:00.09  ksoftirqd/0
    5 root      RT  -5     0     0     0  S   0    0.0    0:00.00  watchdog/0
    6 root      RT  -5     0     0     0  S   0    0.0    0:00.00  migration/1
    7 root      15  -5     0     0     0  S   0    0.0    0:00.03  ksoftirqd/1
    8 root      RT  -5     0     0     0  S   0    0.0    0:00.00  watchdog/1
```

Unix 效能log - nMON

26

Unix 效能監控工具

- 1.系統配置
- 2.CPU 負載
- 3.多核CPU負載
- 4.內存負載
- 5.虛擬內存
- 6.Disk 負載
- 7.MPIO 負載
- 8.Network 負載
- 9.mount point 容量
- 10.process 負載

nmon-13g [H for help] Hostname=nas02 Refresh= 2secs 01:37.29									
CPU Utilisation									
+-----+ CPU User% Sys% Wait% Idle 0 25 50 75 100 1 0.0 0.0 0.0 100.0 > +-----+									
Memory Stats									
RAM High Low Swap									
Total MB	2989.8	-0.0	-0.0	684.0					
Free MB	2666.9	-0.0	-0.0	684.0					
Free Percent	89.2%	100.0%	100.0%	100.0%					
MB MB MB									
Cached= 91.5 Active= 236.7									
Buffers=	18.6	Swapcached=	0.0	Inactive =	43.3				
Dirty =	0.0	Writeback =	0.0	Mapped =	13.0				
Slab =	13.9	Commit_AS =	294.0	PageTables=	2.9				
Virtual-Memory									
nr_dirty =	-1	pgpgin	=	0	High	Normal	DMA		
nr_writeback=	-1	pgpgout	=	0	alloc	0	0	0	
nr_unstable =	-1	pgpswpin	=	0	refill	0	0	0	
nr_table_pgs=	68	pgpswpout	=	0	steal	0	0	1	
nr_mapped =	-1	pgfree	=	0	scan_kswapd	0	0	0	
nr_slab =	-1	pgactivate	=	0	scan_direct	0	0	0	
pgdeactivate= 0									
allocstall =	0	pgfault	=	0	kswapd_steal	=	0		
pageoutrun =	0	pgmajfault	=	0	kswapd_inodesteal=	0			
slabs scanned=	0	pgrotated	=	0	pginodesteal	=	0		
Kernel Stats									
RunQueue	1	Load Average	CPU use since boot time						
ContextSwitch	17.0	1 mins	0.00	Uptime Days=	0	Hours=11	Mins=16		
Forks	0.0	5 mins	0.00	Idle Days=	0	Hours=11	Mins=15		
Interrupts	26.5	15 mins	0.00	Average CPU use=	0.21%				
Network I/O									
I/F Name	Recv=KB/s	Trans=KB/s	packin	packout	insize	outside	Peak->Recv	Trans	
lo	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	
eth0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
eth1	0.0	0.2	0.5	0.5	70.0	354.0	4.9	487.0	
ppp0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Disk I/O /proc/diskstats mostly in KB/s Warning:contains duplicates									
DiskName	Busy	Read	WriteKB	0	25	50	75	100	
sda	0%	0.0	0.0	>					

Oracle 效能log -AWR

27

- 1.TOP 10 SQL 語法
- 2.表空間I/O 使用量
- 3.File I/O 使用量
- 4.Oracle 系統參數

SQL Statistics

- SQL ordered by Elapsed Time
- SQL ordered by CPU Time
- SQL ordered by User I/O Wait Time
- SQL ordered by Gets
- SQL ordered by Reads
- SQL ordered by Physical Reads (UnOptimized)
- SQL ordered by Executions
- SQL ordered by Parse Calls
- SQL ordered by Sharable Memory
- SQL ordered by Version Count
- Complete List of SQL Text

VMware 效能log - esxtop

28

- CPU
- Memory
- Network
- Disk Adapter
- Disk Device
- Disk VM

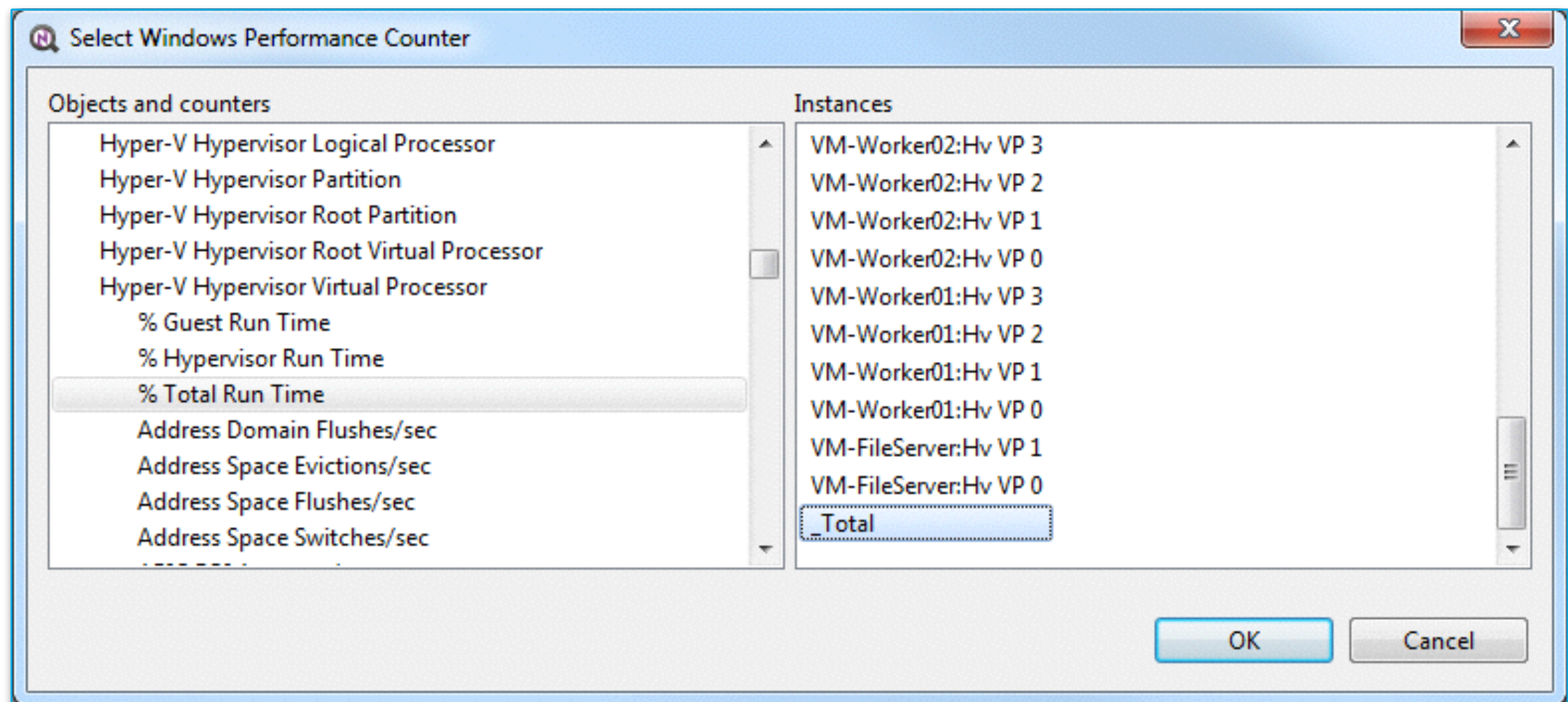
```
10:25:57pm up 49 days 1:25, 432 worlds, 12 VMs, 23 vCPUs; MEM overcommit avg: 0.00, 0.00, 0.00
PMEM /MB: 196562 total: 2152 vmk, 41759 other, 152650 free
VMKMEM/MB: 196178 managed: 2576 minfree, 6909 rsvd, 189268 ursvd, high state
NUMA /MB: 98258 (78164), 98304 (74093)
PSHARE/MB: 82 shared, 19 common: 63 saving
SWAP /MB: 0 curr, 0 rclmtgt: 0.00 r/s, 0.00 w/s
ZIP /MB: 0 zipped, 0 saved
MEMCTL/MB: 0 curr, 0 target, 28631 max
```

GID	NAME	MEMSZ	GRANT	SZTGT	TCHD	TCHD_W	SWCUR	SWTGT	SWR/s	SWW/s	LLSWR/s	LLSWW/s	OVHDIW	OVHD	OVHDMAX
4849766	papaya	4096.00	2084.00	2325.98	163.84	163.84	0.00	0.00	0.00	0.00	0.00	0.00	6.64	32.34	47.37
4849768	vm-vmx.2773816	4096.00	2084.00	2325.98	163.84	163.84	0.00	0.00	0.00	0.00	0.00	0.00	6.64	32.34	47.37
4849769	vm-vmx.2773816	4096.00	2084.00	2325.98	163.84	163.84	0.00	0.00	0.00	0.00	0.00	0.00	6.64	32.34	47.37
4629546	snarf	4096.00	4096.00	4128.28	286.72	204.80	0.00	0.00	0.00	0.00	0.00	0.00	6.64	37.04	47.37
4629548	vm-vmx.2647453	4096.00	4096.00	4128.28	286.72	204.80	0.00	0.00	0.00	0.00	0.00	0.00	6.64	37.04	47.37
4629549	vm-vmx.2647453	4096.00	4096.00	4128.28	286.72	204.80	0.00	0.00	0.00	0.00	0.00	0.00	6.64	37.04	47.37
4630108	liono	4096.00	1710.00	1913.65	286.72	286.72	0.00	0.00	0.00	0.00	0.00	0.00	6.64	31.42	47.37
4630110	vm-vmx.2647818	4096.00	1710.00	1913.65	286.72	286.72	0.00	0.00	0.00	0.00	0.00	0.00	6.64	31.42	47.37
4630111	vm-vmx.2647818	4096.00	1710.00	1913.65	286.72	286.72	0.00	0.00	0.00	0.00	0.00	0.00	6.64	31.42	47.37
4794112	slee-bos-v30-vm	4096.00	4096.00	4137.51	368.64	368.64	0.00	0.00	0.00	0.00	0.00	0.00	6.64	40.27	47.37
4794114	vm-vmx.2741981	4096.00	4096.00	4137.51	368.64	368.64	0.00	0.00	0.00	0.00	0.00	0.00	6.64	40.27	47.37
4794115	vm-vmx.2741981	4096.00	4096.00	4137.51	368.64	368.64	0.00	0.00	0.00	0.00	0.00	0.00	6.64	40.27	47.37
4737414	larriree	4096.00	1362.00	1529.87	81.92	40.96	0.00	0.00	0.00	0.00	0.00	0.00	6.58	30.43	47.30

hyper-V 效能計數器

29

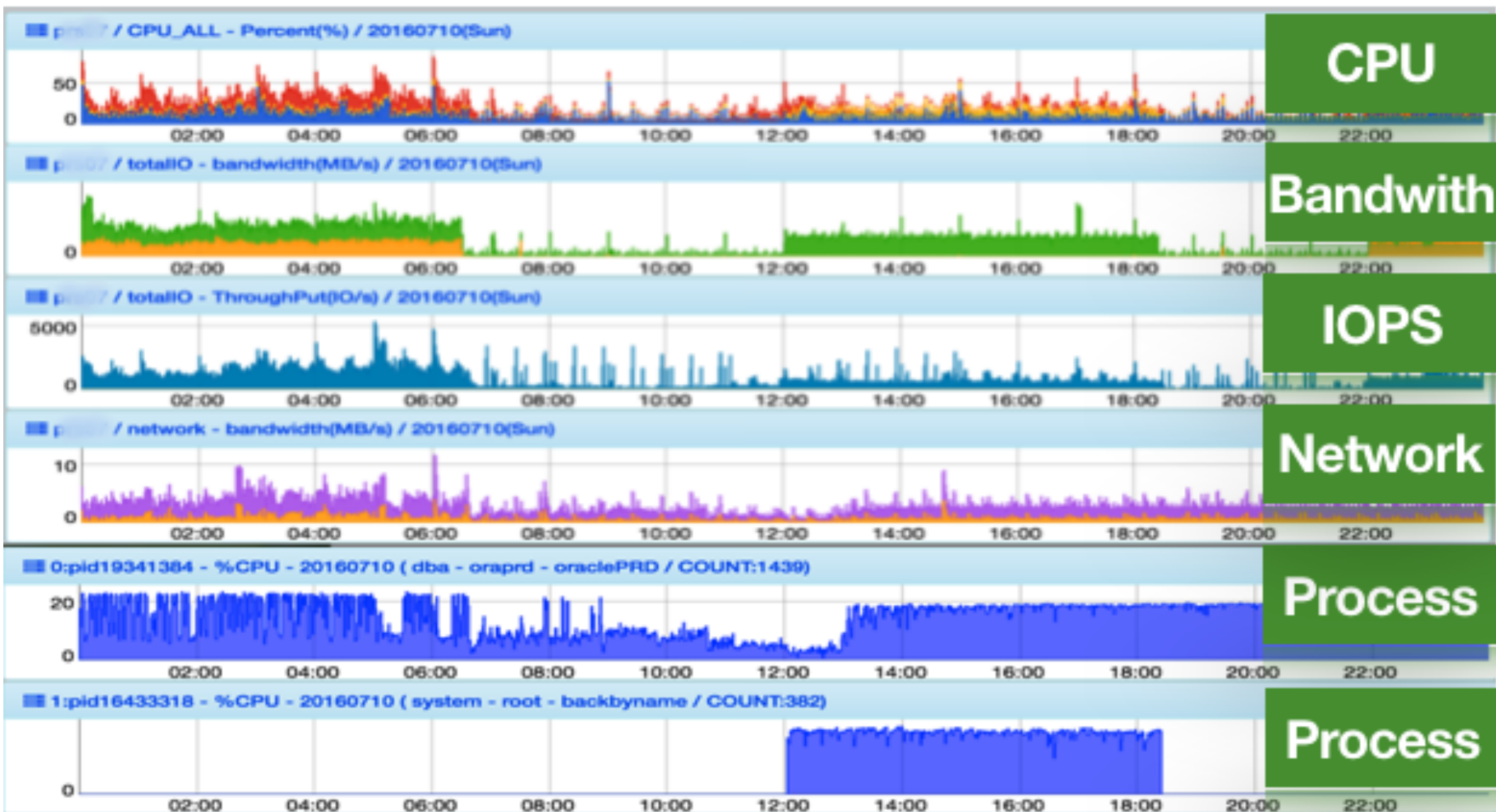
- CPU
- Memory
- Network
- Disk Adapter
- Disk Device
- Disk VM



應用軟體效能關聯分析

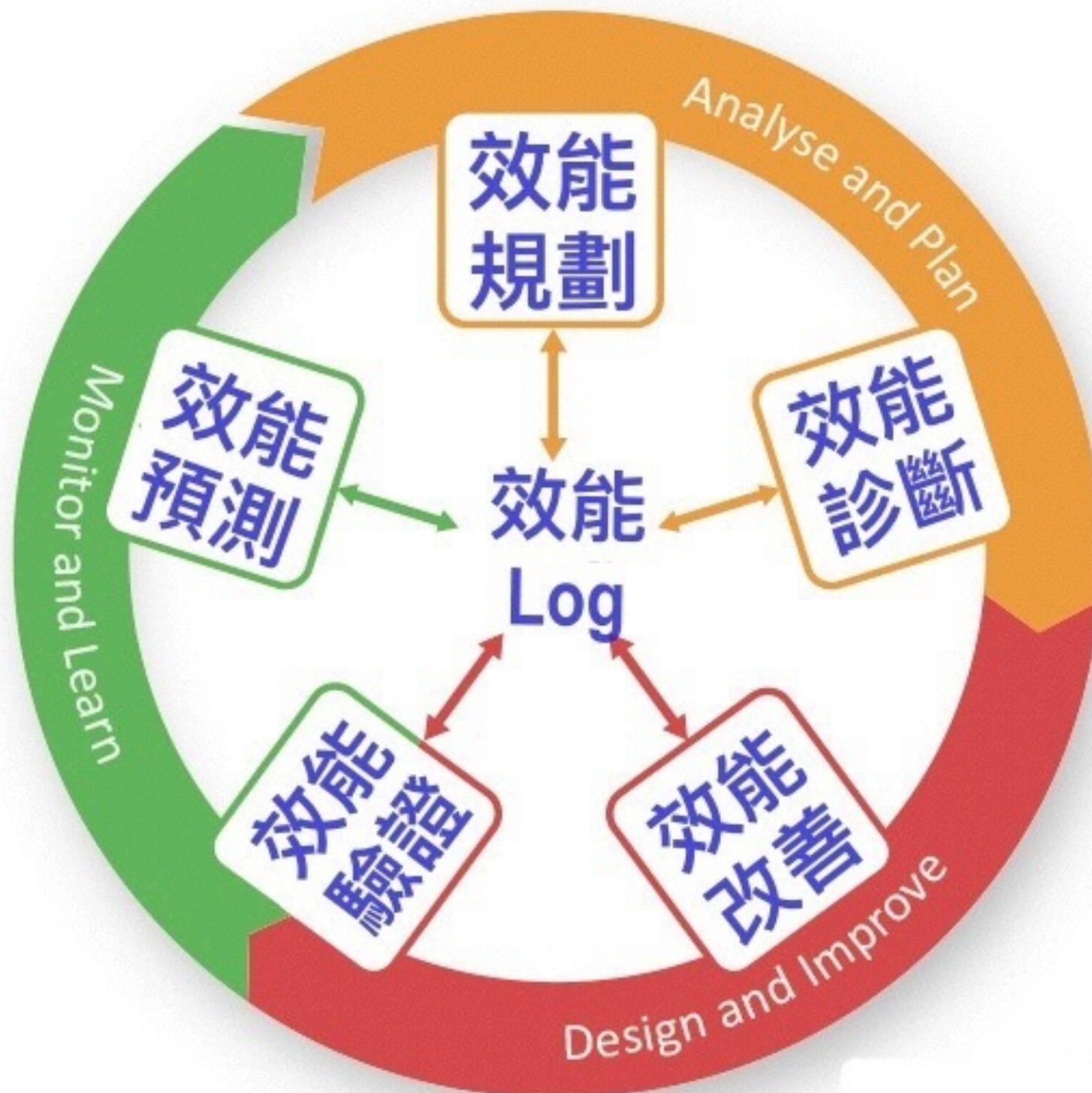
30

Software Process PID關聯分析



系統效能管控範圍

31



效能log



NMON



glance



OSWatcher



LOGMAN



AWR



NAR/NAZ



資安日誌分析

凡走過必留下痕跡 — 登錄Log

33

```
31686 Oct 18 08:39:40 chtml-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31687 Oct 18 08:39:40 chtml-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31688 Oct 18 08:39:40 chtml-ad65b85663e4025d vsftpd[15859]: pam_succeed_if(vsftpd:auth): error retrieving information about user Administr
ateur
31689 Oct 18 08:39:43 chtml-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31690 Oct 18 08:39:43 chtml-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31691 Oct 18 08:39:43 chtml-ad65b85663e4025d vsftpd[15859]: pam_succeed_if(vsftpd:auth): error retrieving information about user Administr
ateur
31692 Oct 18 08:39:46 chtml-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31693 Oct 18 08:39:46 chtml-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31694 Oct 18 08:39:46 chtml-ad65b85663e4025d vsftpd[15859]: pam_succeed_if(vsftpd:auth): error retrieving information about user Administr
ateur
31695 Oct 18 08:39:49 chtml-ad65b85663e4025d vsftpd[15865]: pam_unix(vsftpd:auth): check pass; user unknown
31696 Oct 18 08:39:49 chtml-ad65b85663e4025d vsftpd[15865]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31697 Oct 18 08:39:49 chtml-ad65b85663e4025d vsftpd[15865]: pam_succeed_if(vsftpd:auth): error retrieving information about user Administr
ateur
31698 Oct 18 08:39:49 chtml-ad65b85663e4025d sshd[15863]: Accepted password for root from 114.25.34.29 port 50473 ssh2
31699 Oct 18 08:39:49 chtml-ad65b85663e4025d sshd[15863]: pam_unix(sshd:session): session opened for user root by (uid=0)
31700 Oct 18 08:39:53 chtml-ad65b85663e4025d vsftpd[15865]: pam_unix(vsftpd:auth): check pass; user unknown
31701 Oct 18 08:39:53 chtml-ad65b85663e4025d vsftpd[15865]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31702 Oct 18 08:39:53 chtml-ad65b85663e4025d vsftpd[15865]: pam_succeed_if(vsftpd:auth): error retrieving information about user Administr
ateur
31703 Oct 18 08:39:56 chtml-ad65b85663e4025d vsftpd[15865]: pam_unix(vsftpd:auth): check pass; user unknown
31704 Oct 18 08:39:56 chtml-ad65b85663e4025d vsftpd[15865]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31705 Oct 18 08:39:56 chtml-ad65b85663e4025d vsftpd[15865]: pam_succeed_if(vsftpd:auth): error retrieving information about user Administr
ateur
31706 Oct 18 08:39:59 chtml-ad65b85663e4025d vsftpd[15891]: pam_unix(vsftpd:auth): check pass; user unknown
31707 Oct 18 08:39:59 chtml-ad65b85663e4025d vsftpd[15891]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31708 Oct 18 08:39:59 chtml-ad65b85663e4025d vsftpd[15891]: pam_succeed_if(vsftpd:auth): error retrieving information about user Administr
ateur
31709 Oct 18 08:40:01 chtml-ad65b85663e4025d vsftpd[15891]: pam_unix(vsftpd:auth): check pass; user unknown
31710 Oct 18 08:40:01 chtml-ad65b85663e4025d vsftpd[15891]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31711 Oct 18 08:40:01 chtml-ad65b85663e4025d vsftpd[15891]: pam_succeed_if(vsftpd:auth): error retrieving information about user Administr
ateur
31712 Oct 18 08:40:05 chtml-ad65b85663e4025d vsftpd[15891]: pam_unix(vsftpd:auth): check pass; user unknown
```

系統的資安log (Linux)

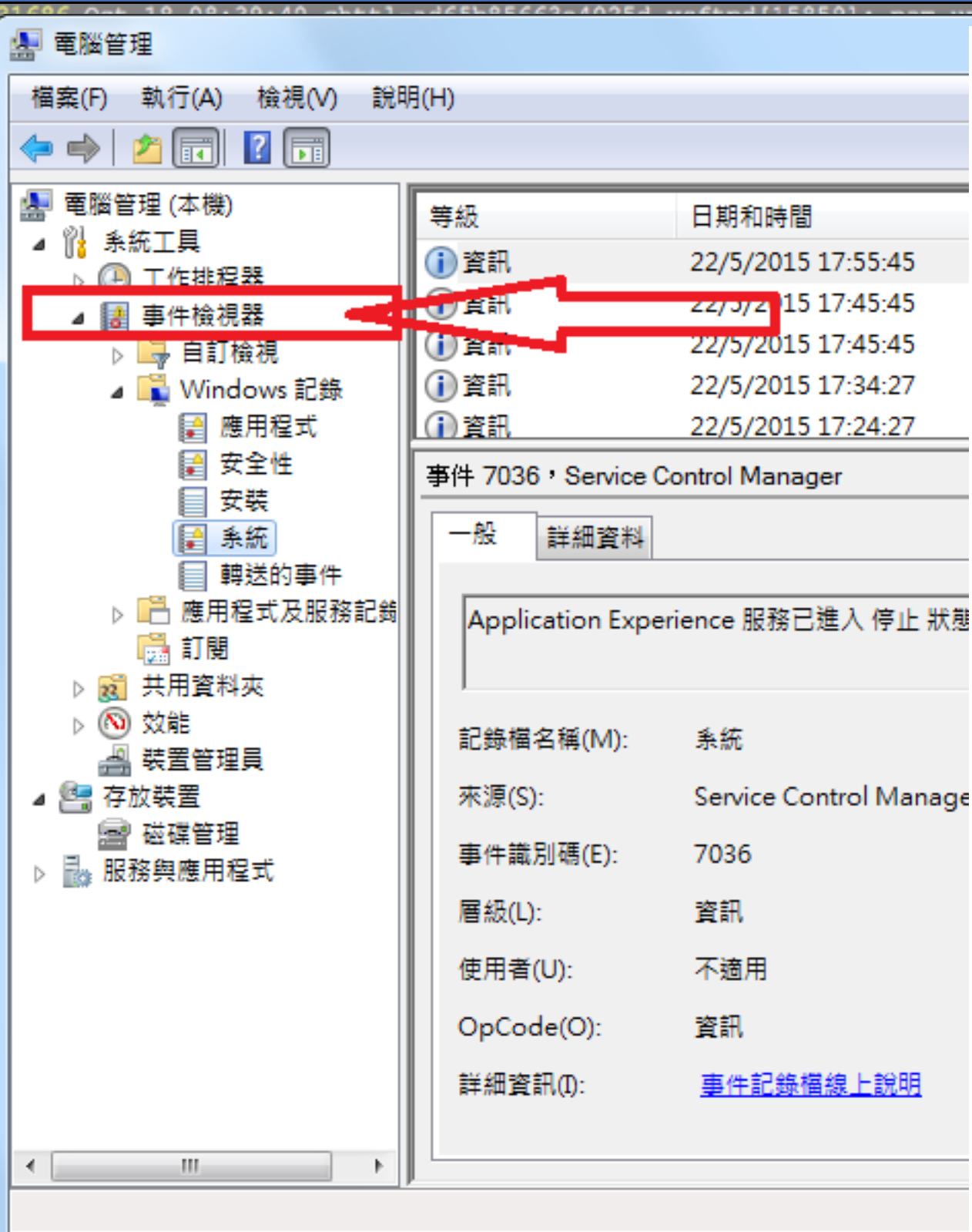
34

```
31686 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31687 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31688 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31689 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31690 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31691 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31692 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31693 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31694 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31695 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31696 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31697 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31698 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31699 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31700 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31701 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31702 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31703 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31704 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31705 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31706 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31707 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31708 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31709 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): authentication failure; logname= uid=0 euid=0 tty=ftp r
user=Administrateur rhost=116.77.34.131
31710 Oct 18 08:39:40 chttl-ad65b85663e4025d vsftpd[15859]: pam_unix(vsftpd:auth): check pass; user unknown
31711 Oct 18 08:40:01 chttl-ad65b85663e4025d vsftpd[15891]: pam_succeed_if(vsftpd:auth): error retrieving information about user Administr
ateur
31712 Oct 18 08:40:05 chttl-ad65b85663e4025d vsftpd[15891]: pam_unix(vsftpd:auth): check pass; user unknown
```

/var/log/message: General message and system related stuff
/var/log/auth.log: Authentication logs
/var/log/kern.log: Kernel logs
/var/log/cron.log: Crond logs (cron job)
/var/log/maillog: Mail server logs
/var/log/qmail/ : Qmail log directory (more files inside this directory)
/var/log/httpd/: Apache access and error logs directory
/var/log/php-fpm/error.log: PHP-FPM error logs
/var/log/nginx/error.log: NGINX access error logs
/var/log/nginx/access.log: NGINX access logs
/var/log/lighttpd: Lighttpd access and error logs directory
/var/log/boot.log : System boot log
/var/log/mysqld.log: MySQL database server log file
/var/log/secure: Authentication log
/var/log/utmp or /var/log/wtmp : Login records file
/var/log/yum.log: Yum log files

系統的資安log (Window Events Log)

35

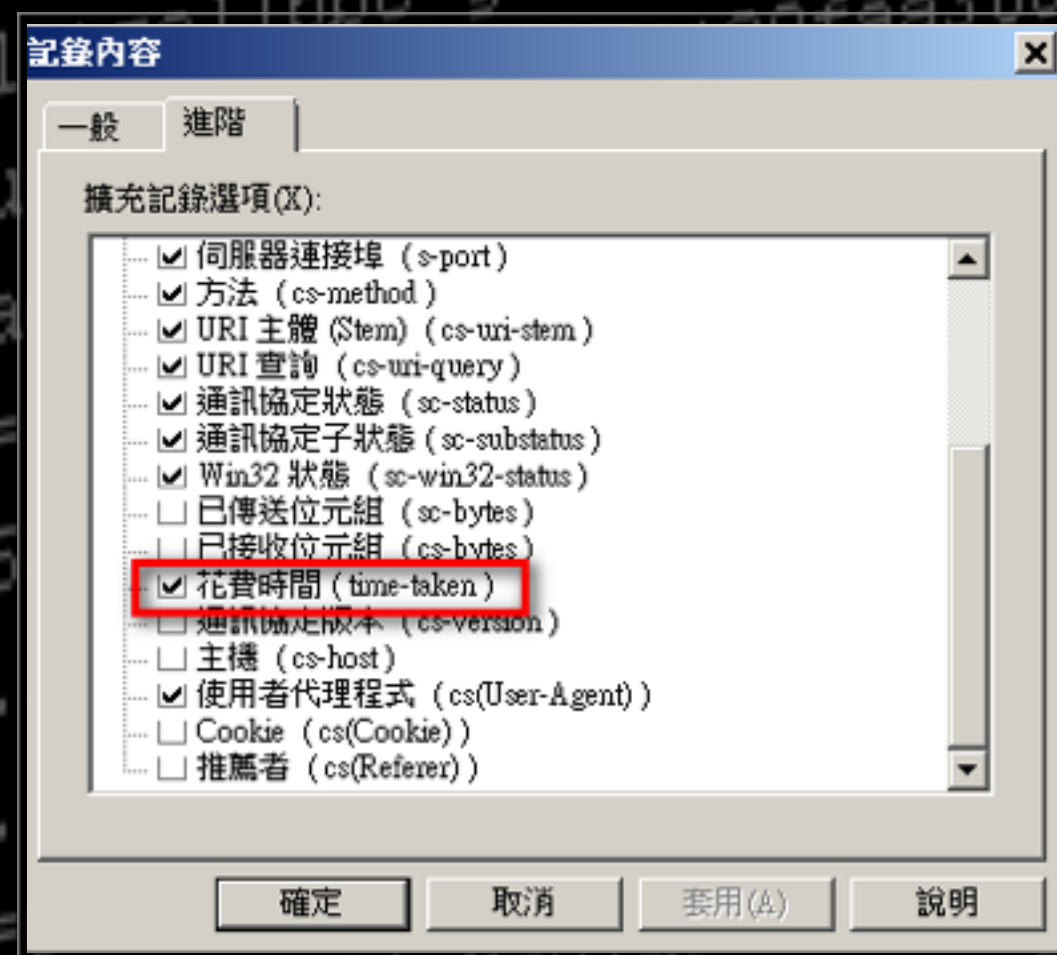


- Type 2 : Console logon from local computer.
- Type 3 : Network logon or network mapping (net use/net view)
- Type 4 : Batch logon, running of scheduler
- Type 5 : Service logon a service that uses an account
- Type 7 : Unlock Workstation
- Event ID 529 : Unknown user name or bad password
- Event ID 530 : Logon time restriction violation
- Event ID 531 : Account disabled
- Event ID 532 : Account expired
- Event ID 533 : Workstation restriction, the user is not allowed to logon at this co
- Event ID 534 : Inadequate rights for console login.
- Event ID 535 : Password expired
- Event ID 536 : Net Logon service down
- Event ID 537 : unexpected error
- Event ID 539 : Logon Failure: Account locked out
- Event ID 627 : NT AUTHORITY\ANONYMOUS is trying to change a password
- Event ID 644 : User account Locked out
- Event ID 541 : IPSec security association established
- Event ID 542 : IPSec security association ended (mode data protection)
- Event ID 543 : IPSec security association ended (key exchange)
- Event ID 544 : IPSec security association establishment failed because peer coul
- Event ID 545 : IPSec peer authentication failed
- Event ID 546 : IPSec security association establishment failed because peer sent
- Event ID 547 : IPSec security association negotiation failed
- Event ID 672 : Authentication Ticket Granted
- Event ID 673 : Service Ticket Granted
- Event ID 674 : Ticket Granted Renewed

iis 網頁log

36

1. 訪問量最大的Top10 URL
2. 訪問失敗量前10名網頁
3. 無法訪問前10名網頁
4. 發生錯誤最多的信息
5. 訪問時間超過5秒的網頁
6. 訪問量最多的時間段(熱點時段)
7. 前10名下載流量最大的zip 文件
8. 指定的IP做了那些訪問那些網頁
9. 在線人數的統計分析
10. 訪問量前10名的IP 地址



apache access log

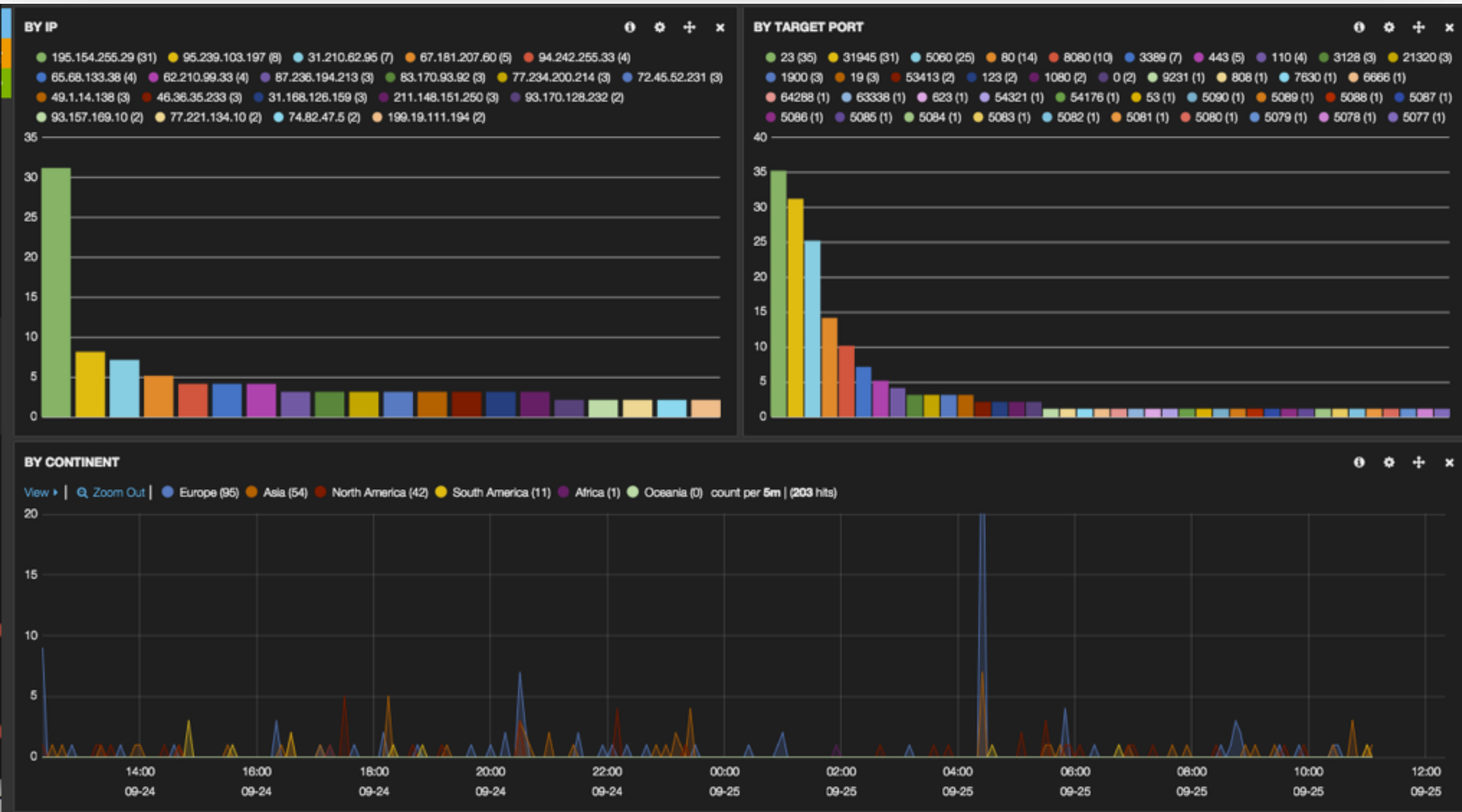
37

- 訪問訊息：IP/URL/訪問狀態/消耗時間
- 錯誤訊息：錯誤級別/錯誤信息

```
1699039 2016-09-25 08:06 access_log
388465171 2016-09-25 02:07 access_log-20160828
149946713 2016-09-25 08:06 access_log-20160904
591284484 2016-09-25 08:06 access_log-20160911
373018985 2016-09-25 08:07 access_log-20160918
402748493 2016-09-25 08:07 access_log-20160925
420 2016-09-25 08:07 error_log
11267 2016-09-25 02:08 error_log-20160828
12648 2016-09-25 08:07 error_log-20160904
16057 2016-09-25 08:07 error_log-20160911
15244 2016-09-25 08:07 error_log-20160918
14408 2016-09-25 08:07 error_log-20160925
```

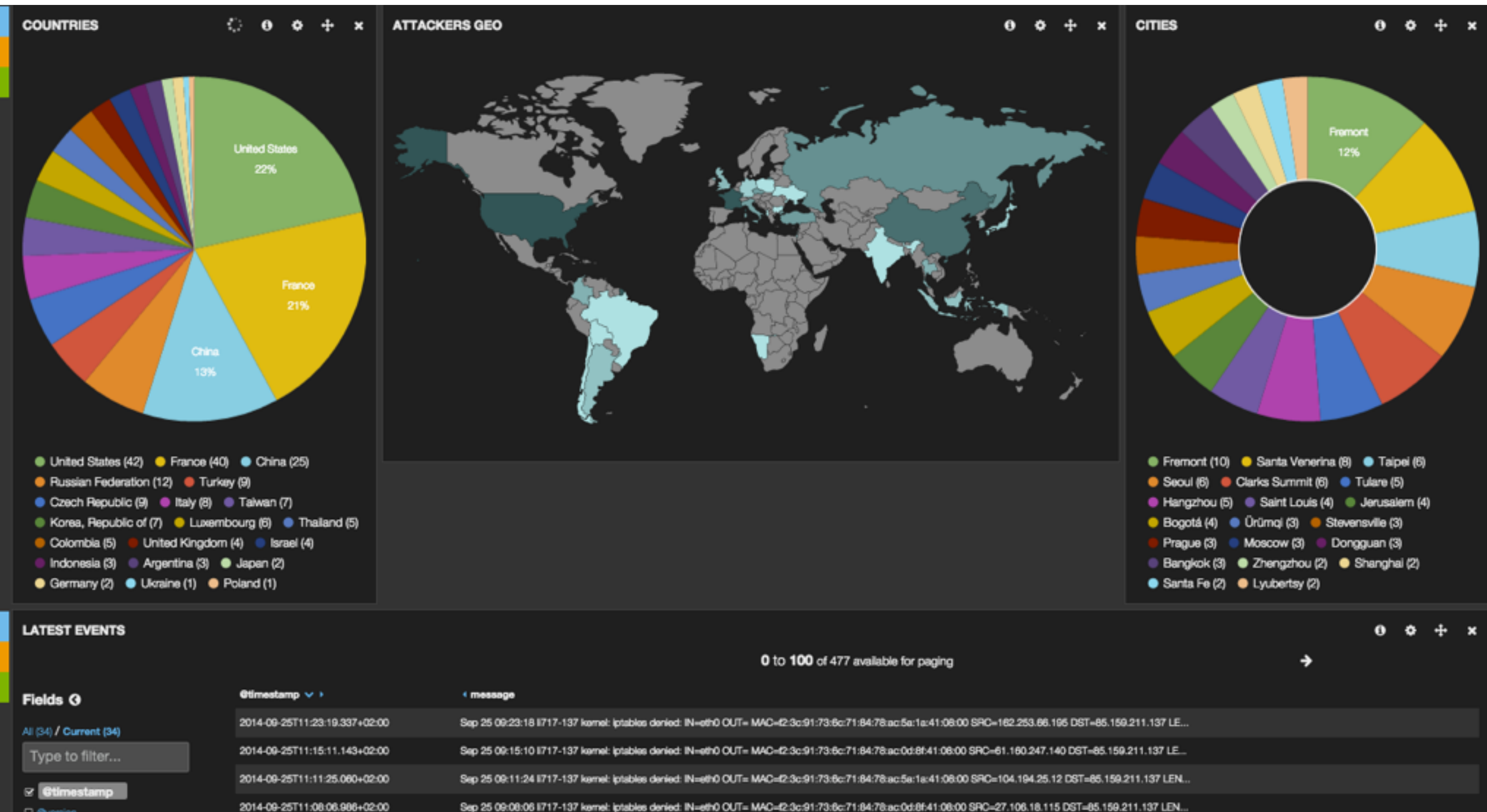
誰來了，什麼時候來的？

38



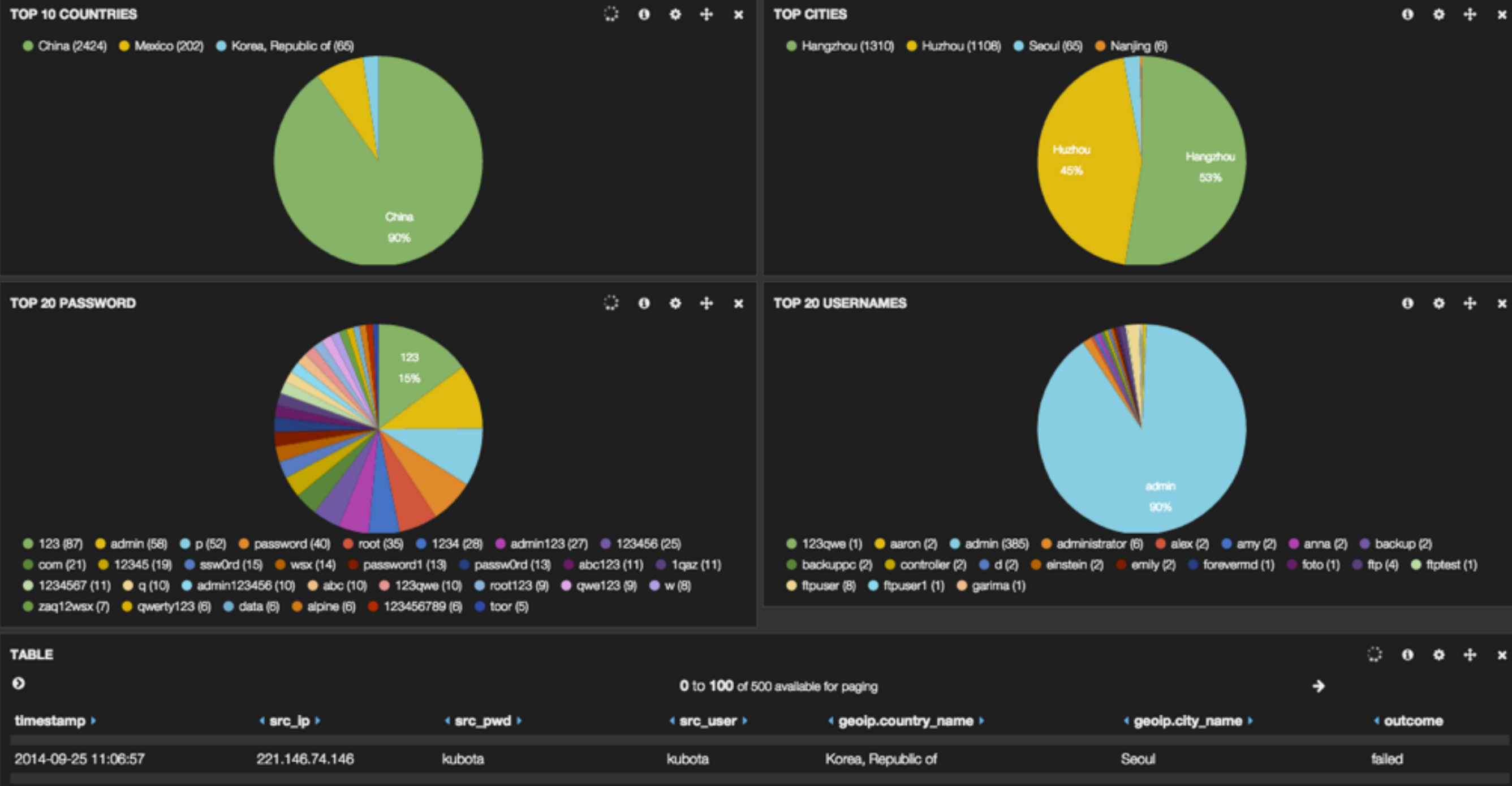
從哪裡來的？

39



怎麼進來的？

40



IT 系統日誌類別

41

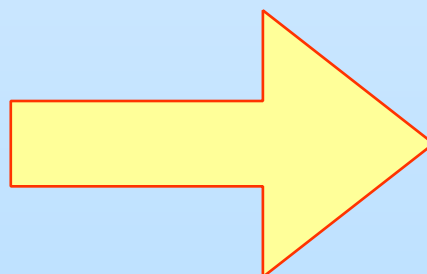
日誌種類

1. 應用AP日誌
2. 效能日誌
3. 訪問日誌
4. 數據庫日誌
5. 用戶登錄日誌
6. 系統event 日誌
7. 防火牆日誌
8. 網路流量日誌
- 9.....

日誌分析需求

1. 故障信息查詢
2. 應用異常追蹤
3. 性能瓶頸定位
4. 性能優化
5. 非法登錄查詢
6. 系統報錯查詢
7. 資安問題排查
8. 日誌稽核審計
- 9....

日誌集中





應用案例