



World 2012

SNMP Monitoring of Devices using Lithium

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The Australian National University

Introduction

- About Me
- About ANU
- Device Monitoring
- SNMP
- Workshop

Workshop

- Lion SNMP setup (& test)
- Windows SNMP setup (& test)
- Lithium Install
- Lithium Device setup

Workshop

- Lithium
 - Reporting
 - Graphing
 - Module Builder
- Konica device setup

House Keeping

House Keeping

- Mobile phones.. can be on



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- Skill Level (of 3)

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 1. Opened (find) Terminal

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 2. ``sudo``, ``vi``, ``pico``, ``kill``

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- Skill Level (of 3)
 1. Opened (find) Terminal
 2. `sudo`, `vi`, `pico`, `kill`
 3. Experienced with SNMP

House Keeping

- Mobile phones.. can be on
- Skill Level (of 3)
 1. Opened (find) Terminal
 2. `sudo`, `vi`, `pico`, `kill`
 3. Experienced with SNMP
- Window Services ?

About Me



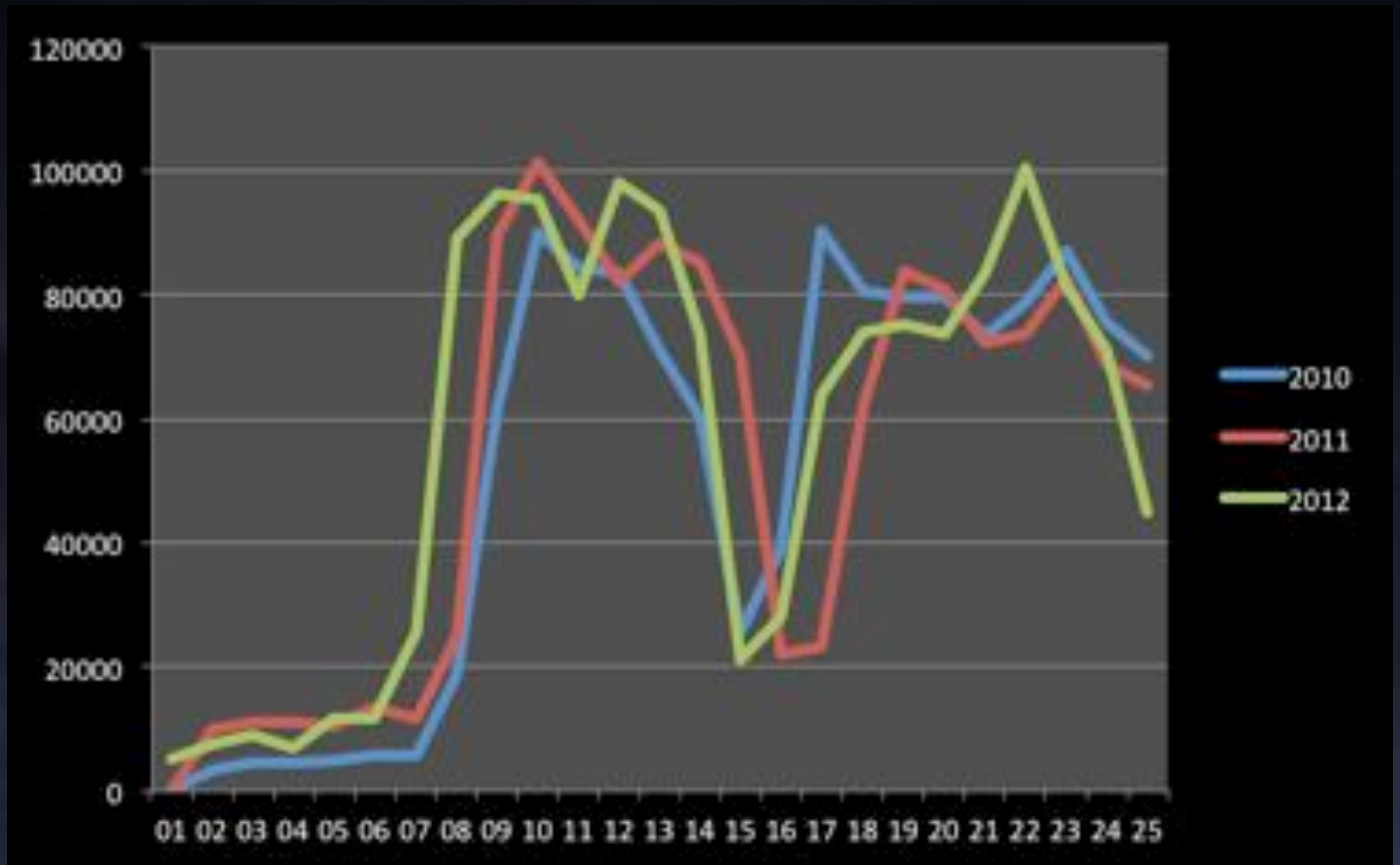
XW12

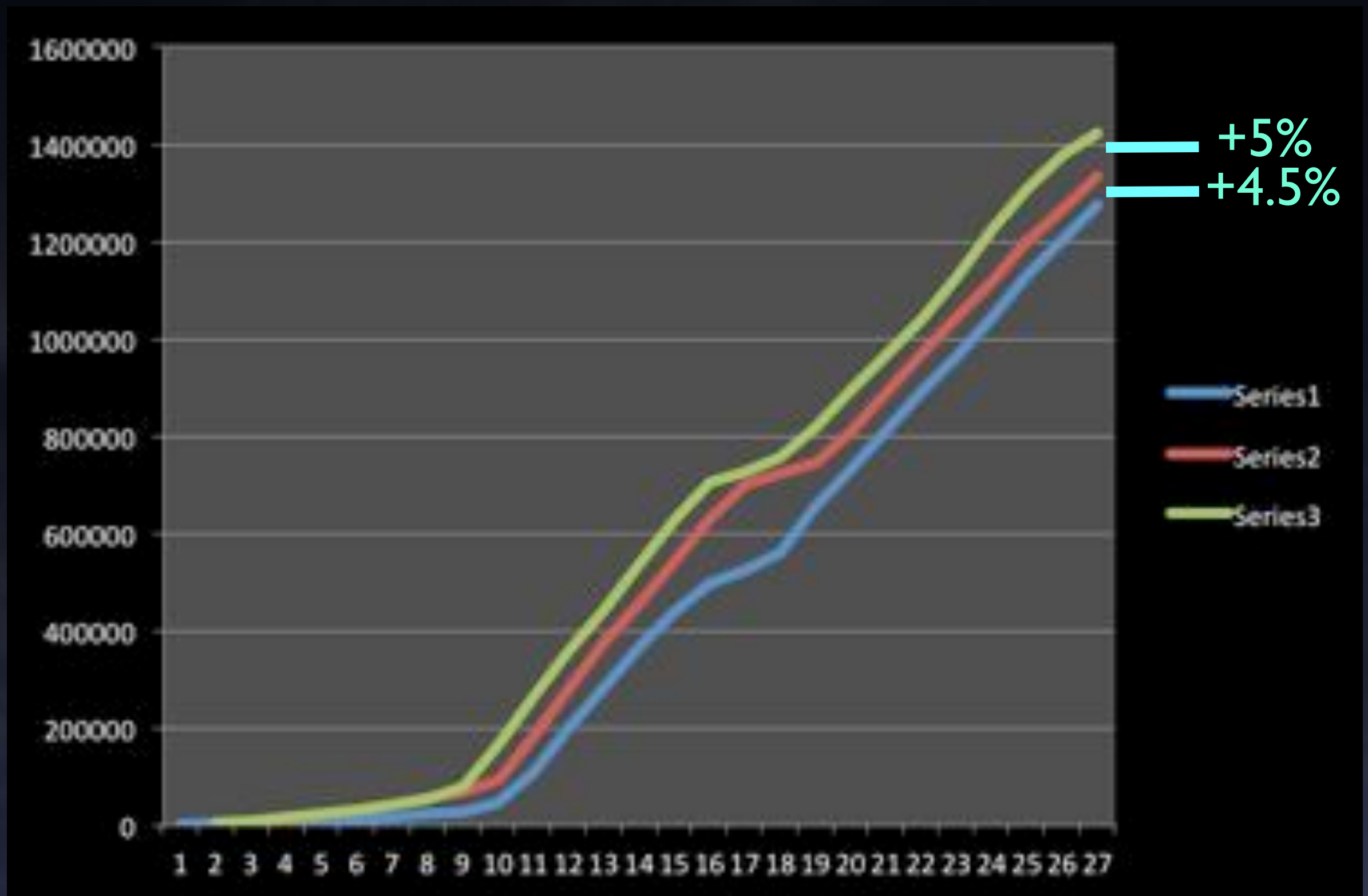
About Me



Device Monitoring

- Why?
- How?
- To what extent?





ANUs Devices

- 128+ Printers / MFDs
- 5 Headless 'Kiosks'
- 4 Servers
- 150+ staff, various divisions colleges

Requirement

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- Granular security access

Requirement

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- Single reporting interface

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- External services access (SQL pref)

Requirement

- Granular security access
- Single reporting interface
- External services access (SQL pref)
- Easy to setup / support / use

Devices



XW12

Monitoring Products

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- Nagios

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- Cacti
- Konica - PageScope

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- HP WebJetAdmin

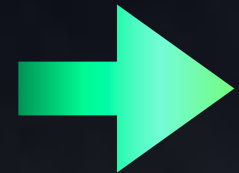
Monitoring Products

- Nagios
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- HP WebJetAdmin
- Various Windows (PRTG, SpiceWorks ect)

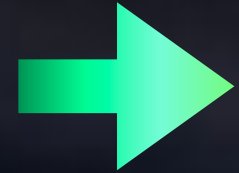
Monitoring Products

- Nagios
- Cacti
- Konica - PageScope
- HP WebJetAdmin
- Various Windows (PRTG, SpiceWorks ect)
- Lithium

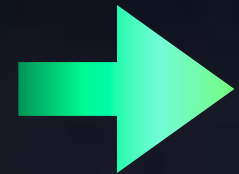
SNMP Monitoring Products



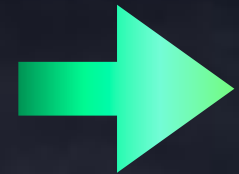
- Nagios



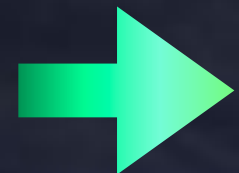
- Cacti



- Konica - PageScope



- HP WebJetAdmin



- Various Windows (PRTG, SpiceWorks ect)

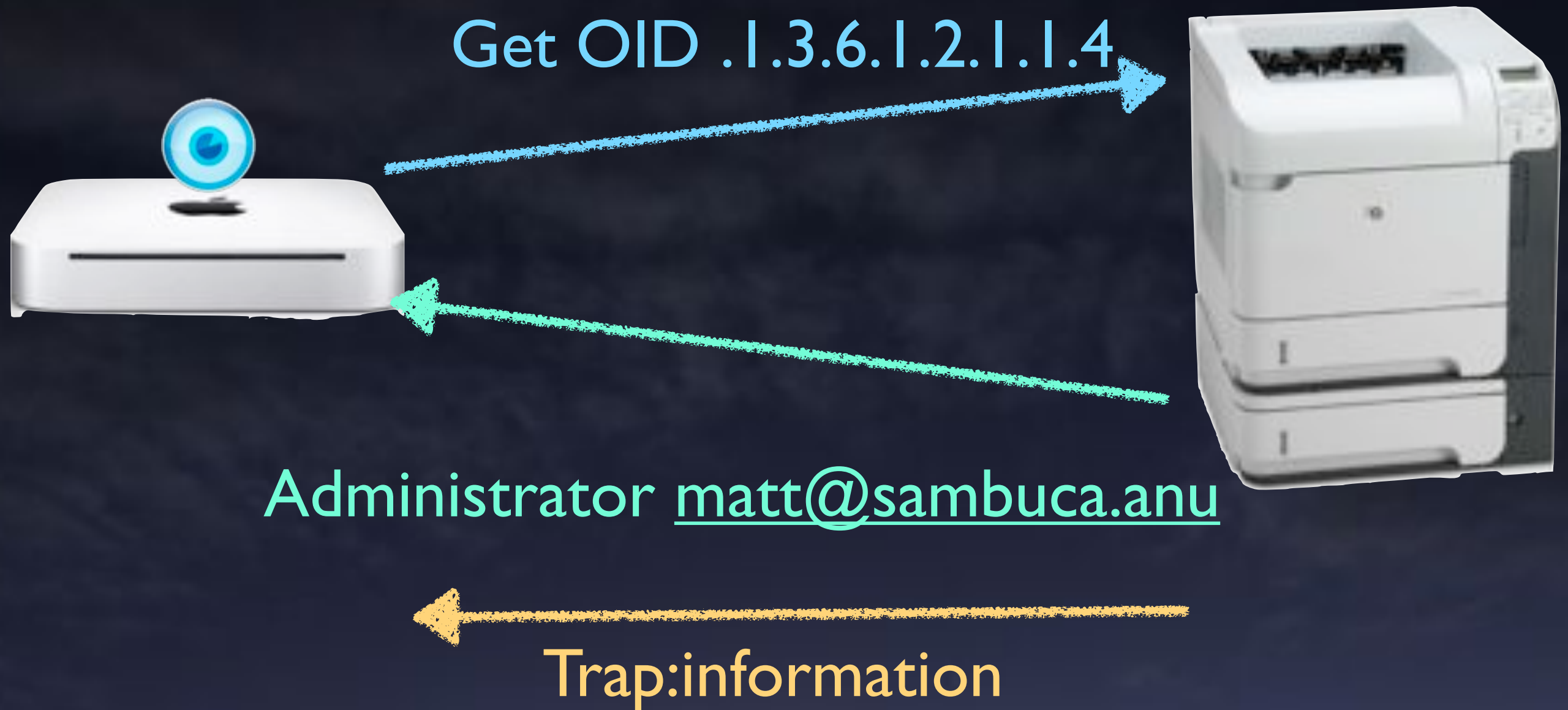


- Lithium

SNMP

- Simple Network Management Protocol
- MIB = Management Information Base
- OID = Object Identifiers
 - `Iso(1).org(3).dod(6).internet(1).private(4).transition(868).products(2).chassis(4).card(1).slotCps(2)-.-
cpsSlotSummary(1).cpsModuleTable(1).cpsModuleEntry(1).cpsModuleModel(3).3562.3`
 - `1.3.6.1.4.868.2.4.1.2.1.1.1.3.3562.3`

SNMP operation



SNMP operation



Trap:information

SNMP Requirements

- Device that supports SNMP
- Ports 161 / 162 opened UDP
- Manager (server / application)

Workshop

Lion Setup

sudo -s

snmpwalk -c public localhost

/usr/sbin/snmpd

snmpwalk -c public localhost

vi /etc/hostconfig

add "SNMPSERVER:=-YES-"

- 1.GoTo Finder
- 2.Open Utilities
- 3.Open Terminal
- 4.Run `sudo -s` (provide password)
- 5.Run `snmpwalk -c public localhost`
- 6.Enable snmpd
 - 1.Run /usr/sbin/snmp
- 7.Run `snmpwalk -c public localhost`
- 8.worked ?
- 9.edit /etc/hostconfig
- 10.add "SNMPSERVER:=-YES-" (save)

1. Still in Terminal
2. Edit /etc/snmp/snmpd.conf
3. Find "rocommunity public default .1.3.6.1.2.1.1.4"
4. Remove the "1.3.6.1.3.1.1.3" bit (save)

Lion Test

6. Restart snmpd: Reboot machine -or-
 1. ps -xa | grep snmp
 2. Using the process id number
 3. kill <process id number>
 4. /usr/sbin/snmpd
7. Test again `snmpwalk -c public localhost`

```
vi /etc/snmp/snmpd.conf
```

```
"rocommunity public default .1.3.6.1.2.1.1.4"
```

```
"rocommunity public default .1"
```

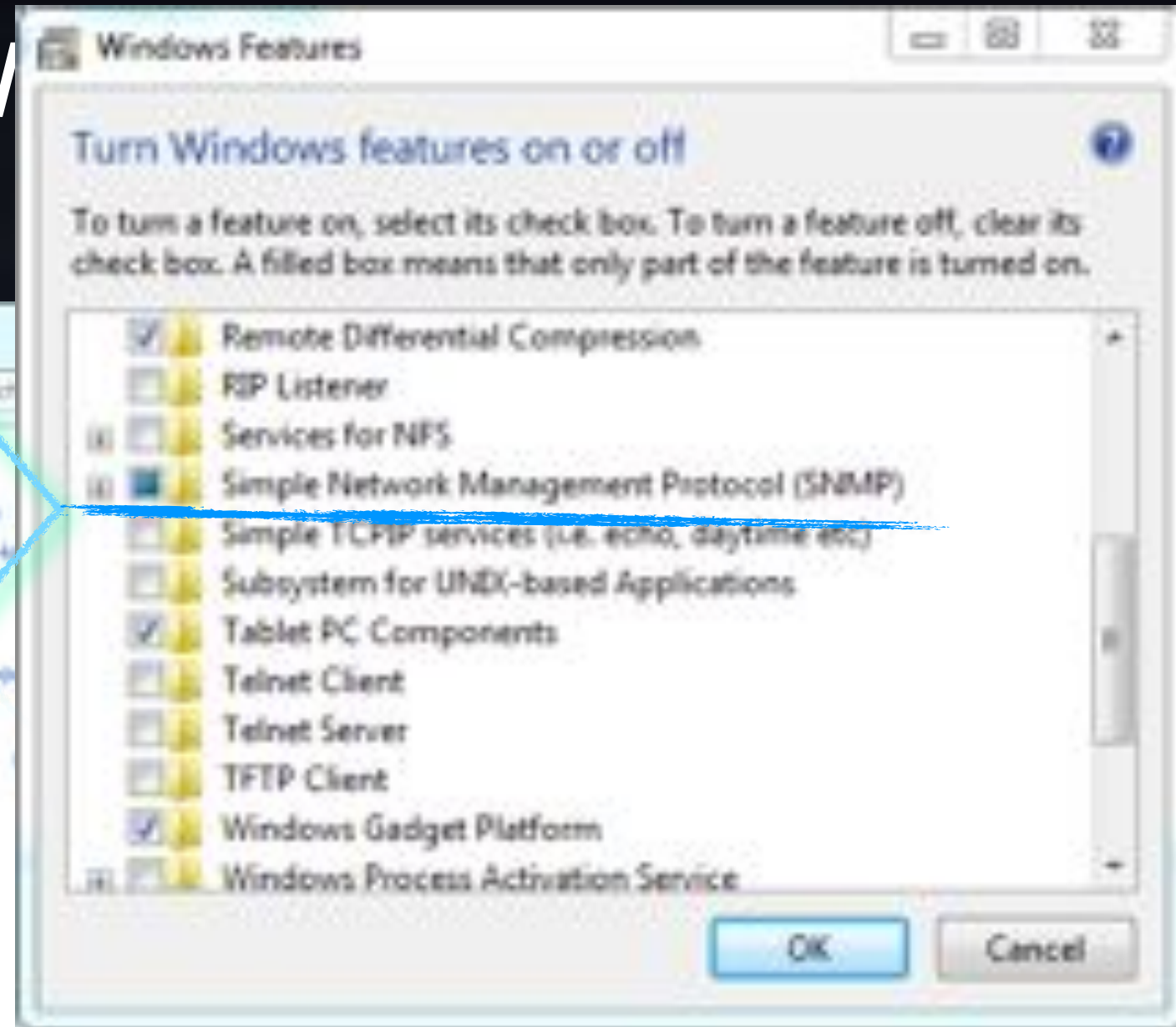
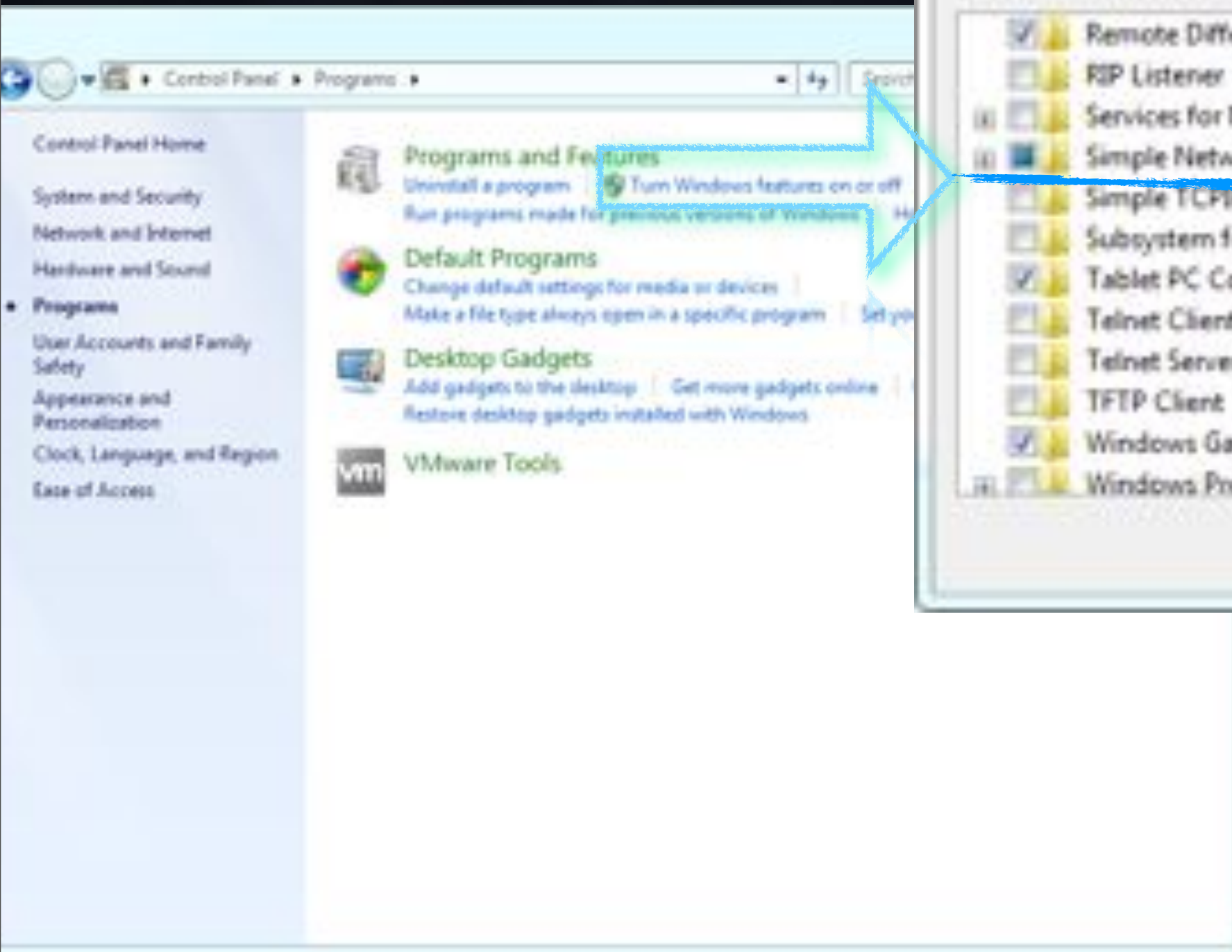
```
ps -xa | grep snmp
```

```
kill <insert PID>
```

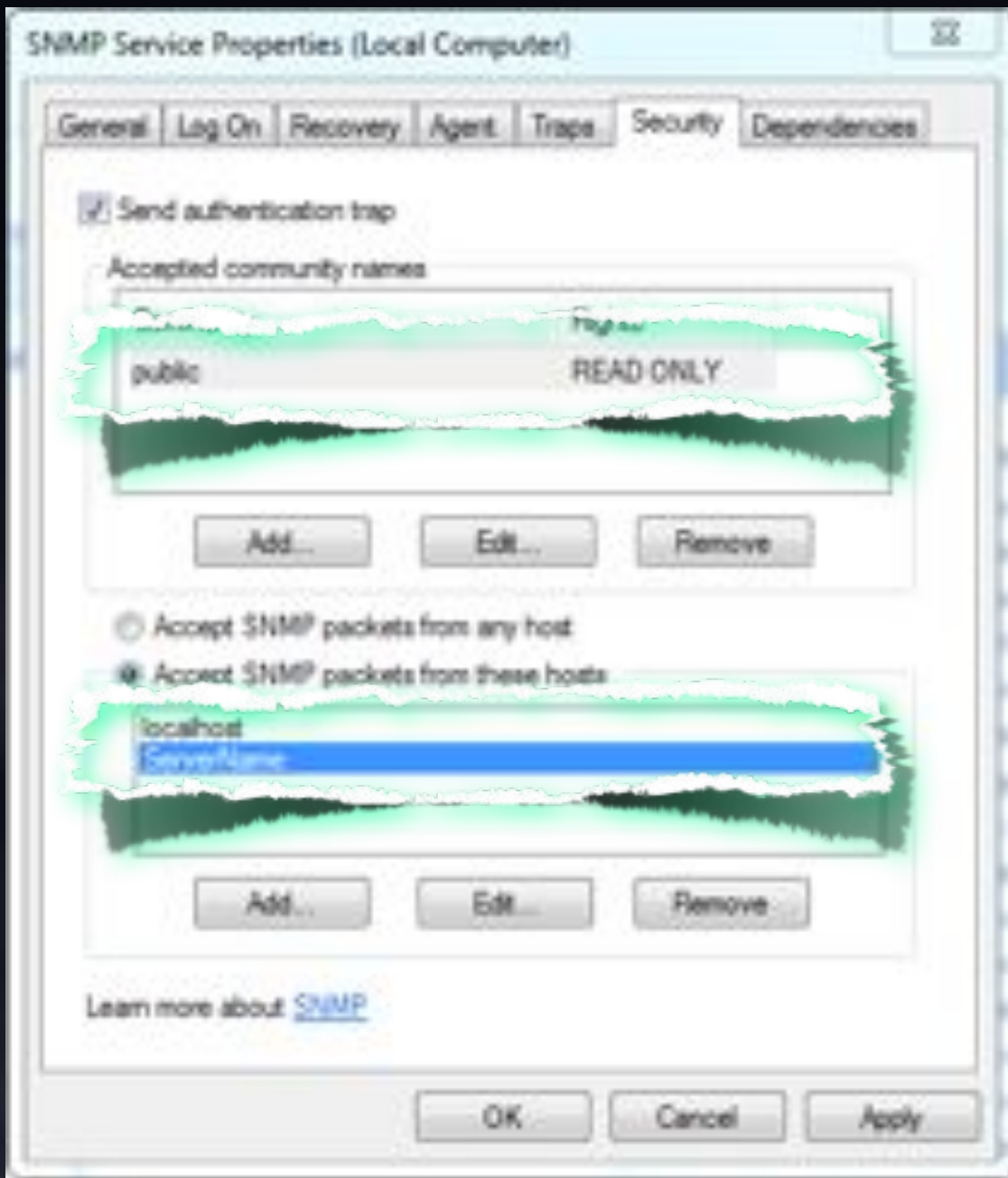
```
/usr/sbin/snmpd
```

```
snmpwalk -c public localhost
```

Windows



1. Open "Control Panel"
2. Select "Programs"
3. Select "Turn Windows features on and off"
4. Find / Select:
 1. "Simple Network Management Protocol"
5. OK
6. Exit Control Panel



Shows Security



1. Open "Services"
 - 1.(services.msc)
2. Find "SNMP Service"
3. Right-Click "Properties"
4. tab - "Traps"
 1. Add community "public"
 2. 'Add to list'
5. tab - "Security"
6. Add Community "public", 'read only'
7. Add hosts, the IP of you 'Lion Server'



Windows Test

```
snmpwalk -c public <windows IP address>
```

Lithium

- Load Lion Server
- Install Lithium Core <insert location>
 - Un-check Lithium Console
- Open Lithium Core Admin
 - /Applications/

MONITORED DEVICES

- ▼ Default Location
 - Lion Client
 - Lion Server
 - Windows 7
 - localhost
- ▶ GROUPS
- ▶ APPLICATIONS
- ▶ FAULTS
- ▶ DOCUMENTS
- ▶ DISCOVERY
- ▶ XLAN
- ▼ LITHIUM DEPLOYMENTS
 - ▼ 172.16.228.111
 - ▼ Core
 - License Key
 - Users
 - Actions
 - Action Scripts
 - Action Filter
 - Service Scripts
 - Custom Modules

- Lion Client
- Lion Server
 - Storage Resources /volumes/admin Used Percent Warning
- ▼ Windows 7
 - Network Interfaces Intel(R) PRO/1000 MT Network Connection Operational State Down
 - Network Interfaces Microsoft 6to4 Adapter Operational State Down
 - Network Interfaces Bluetooth Device (Personal Area Network) Operational State Down
- localhost

Lion Server Device

Entity Tree

- ▼ Lion Server
 - ▶ Availability
 - ▶ ICMP
 - ▶ System Information
 - ▶ CPU
 - ▶ Load Averages
 - ▶ Memory

Device Refresh

Device Last Pulled: 2012-06-26 13:26:58 +0000

Console Refreshed: Wednesday, 27 June 2012 3:11:06

Active Incidents (0)

- [Volumes/admin Used Percent Warn... 0% 10%

30-Day Incident History (0)

Lithium Console - admin-Mac.local Default Location: Lion Client

Lion Client (192.168.1.109)

MONITORED DEVICES

- admin-Mac.local
 - Default Location
 - localhost
 - Lion Server
 - Windows 7
 - localhost

GROUPS

APPLICATIONS

FAULTS

DOCUMENTS

DISCOVERY

XSAN

LITHIUM DEPLOYMENTS

- 172.16.228.111
 - Core
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Storage Resources Container

File Tree

- Storage Resources
 - /
 - /Volumes/
 - /Volumes/BOOTCAMP

30-Day Incident History (3)

- 28 hours ago - Storage Resources /Volumes

Device

- Availability
- ICMP
- System Information
- CPU
- Load Averages
- Memory
- Network Interfaces
- IP Addresses
- Storage Resources
- Applications

Storage Resources Details:

Device	Used Percent	Free	Access
/Volumes/	62.34%	26.00GByte	Read/Write
/Volumes/vanillaSambuca	81.08%	10.47GByte	Read/Write
/Volumes/BOOTCAMP	0.00%	186.21GByte	Read/Write

Service Monitoring | Process Monitoring | Triggers

Lithium Reporting

- Website , Console , iPhone

Lithium Reporting

- Actions
- Action Scripts
- Action Filter
 - Email setup
- Service Scripts

Lithium Graphing

- Demo (live at ANU)
- Local lab machines (pending data exists)

Process Monitoring

- Monitor an individual process
- Monitor string regular expression process

Service Monitoring

- Monitor specific services
 - SMTP
 - Web
 - AFP
 - DNS
- Other (is port: X open)
- User Created

Module Builder

- Where SNMP MIB data does not currently exist already
- Able to extend current (pre-configured) Device Types
- Export for use in other applications *

Final

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