

Raspberry Pi in the Sky

Gail Good, Wisconsin DNR, Air Program Director
Katie Praedel, Wisconsin DNR, Air Monitoring Section Chief



Wisconsin DNR Air Monitoring Innovation

DNR Strategic Alignment

Network Efficiency

- Wisconsin's PM_{2.5} ambient air monitoring network is fully streamlined, reduced from 40 pieces of equipment to 20 collecting more data.

Leverage Technology to enhance work products and improve staff engagement

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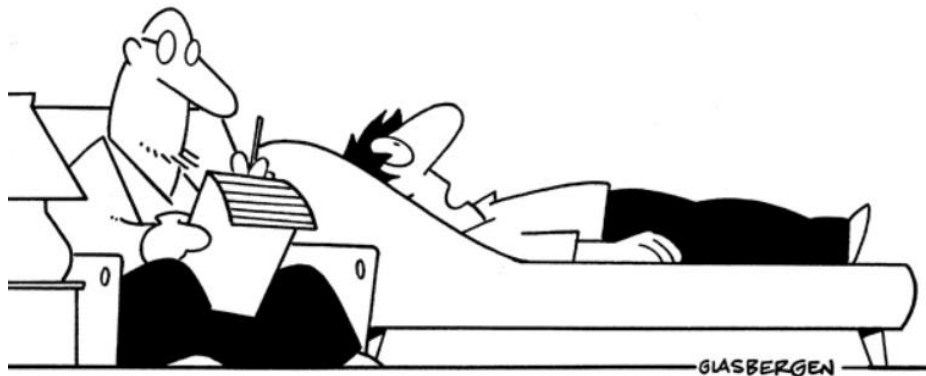
Efficiency through Technology

- Engineering Team
 - Strengths in our group – bringing ideas to coordinators and implementing change
 - Goals for data redundancy and consistency
- Statewide support and roll outs for new technology
 - Raspberry Pi's
 - Tablets – mobile apps

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Technology

- Monitoring data telemetry moving from Windows 7 Dell computers to Raspberry Pi microprocessors



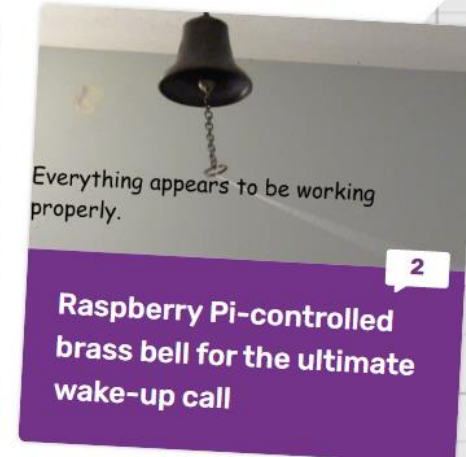
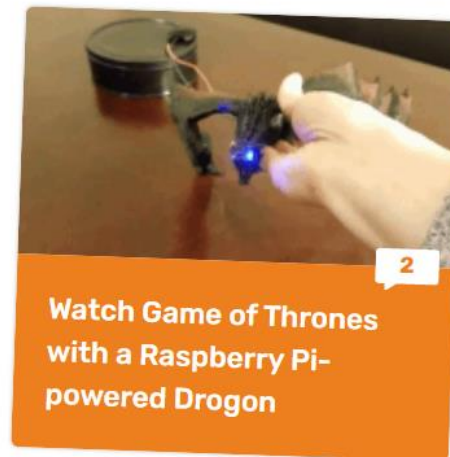
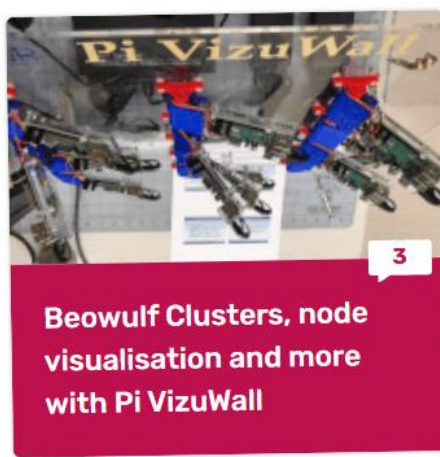
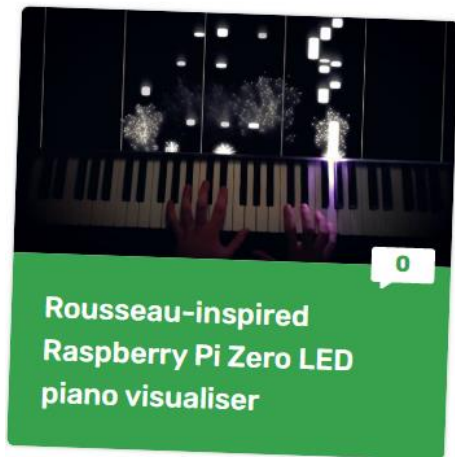
"No, I get along fine with my parents.
It's my motherboard that's driving me crazy!"



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Raspberry Pi

- Used in everyday applications
- Readily available (Target, Amazon)
- Uses a Linux (open source) operating system



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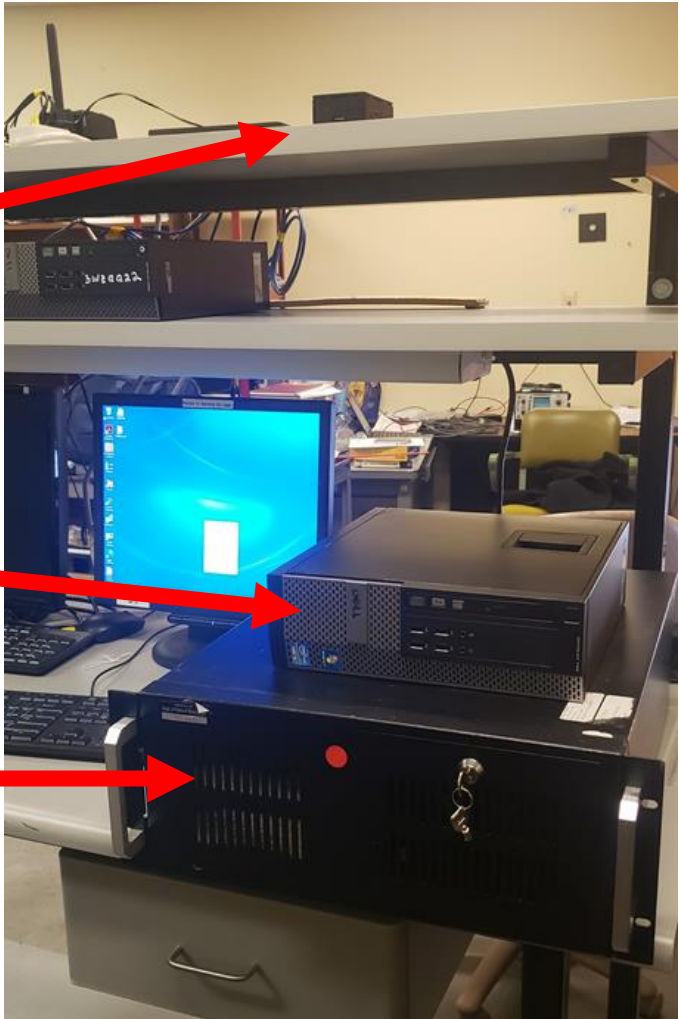
- Technology expands, actual devices shrink.
- Size
- Cost



2020
\$34.99

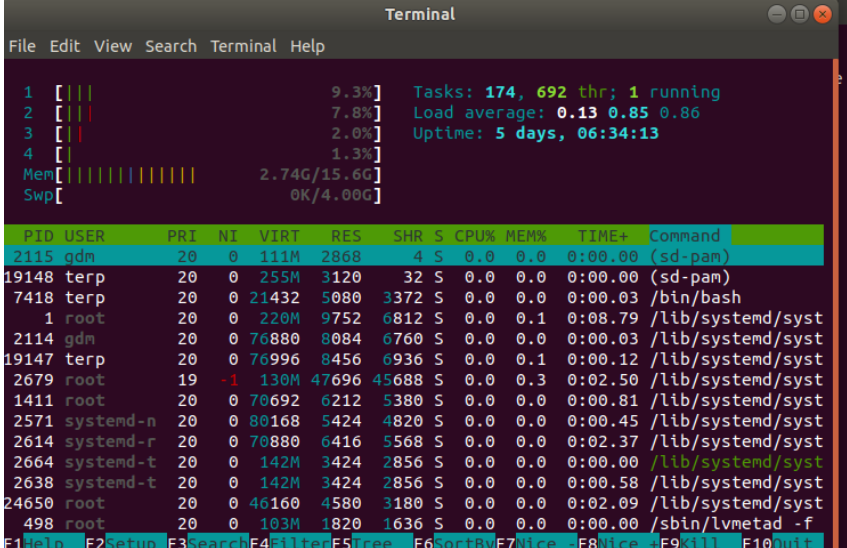
2015
\$2000

2010
\$4000



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- Cloning for new computer roll-out
- Transportable
- Security improvements



Terminal

File Edit View Search Terminal Help

```
1 [|||] 9.3% Tasks: 174, 692 thr; 1 running
2 [|||] 7.8% Load average: 0.13 0.85 0.86
3 [||] 2.0% Uptime: 5 days, 06:34:13
4 [ ] 1.3%
Mem [|||||] 2.74G/15.6G
Swp [ ] 0K/4.00G
```

PID	USER	PRI	NI	VIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
2115	gdm	20	0	111M	2868	4	S	0.0	0.0	0:00.00	(sd-pam)
19148	terp	20	0	255M	3120	32	S	0.0	0.0	0:00.00	(sd-pam)
7418	terp	20	0	21432	5080	3372	S	0.0	0.0	0:00.03	/bin/bash
1	root	20	0	220M	9752	6812	S	0.0	0.1	0:08.79	/lib/systemd/syst
2114	gdm	20	0	70880	8084	6760	S	0.0	0.0	0:00.03	/lib/systemd/syst
19147	terp	20	0	76996	8456	6936	S	0.0	0.1	0:00.12	/lib/systemd/syst
2679	root	19	-1	130M	47696	45688	S	0.0	0.3	0:02.50	/lib/systemd/syst
1411	root	20	0	70692	6212	5380	S	0.0	0.0	0:00.81	/lib/systemd/syst
2571	systemd-n	20	0	80168	5424	4820	S	0.0	0.0	0:00.45	/lib/systemd/syst
2614	systemd-r	20	0	70880	6416	5568	S	0.0	0.0	0:02.37	/lib/systemd/syst
2664	systemd-t	20	0	142M	3424	2856	S	0.0	0.0	0:00.00	/lib/systemd/syst
2638	systemd-t	20	0	142M	3424	2856	S	0.0	0.0	0:00.58	/lib/systemd/syst
24650	root	20	0	46160	4580	3180	S	0.0	0.0	0:02.09	/lib/systemd/syst
498	root	20	0	103M	1820	1636	S	0.0	0.0	0:00.00	/sbin/lvmetad -f

F1 Help F2 Setup F3 Search F4 Filter F5 Tree F6 SortBy F7 Nice F8 Nice + F9 Kill F10 Quit

Questions?

Katie Praedel

Katie.Praedel@Wisconsin.gov

(608)259-6108

