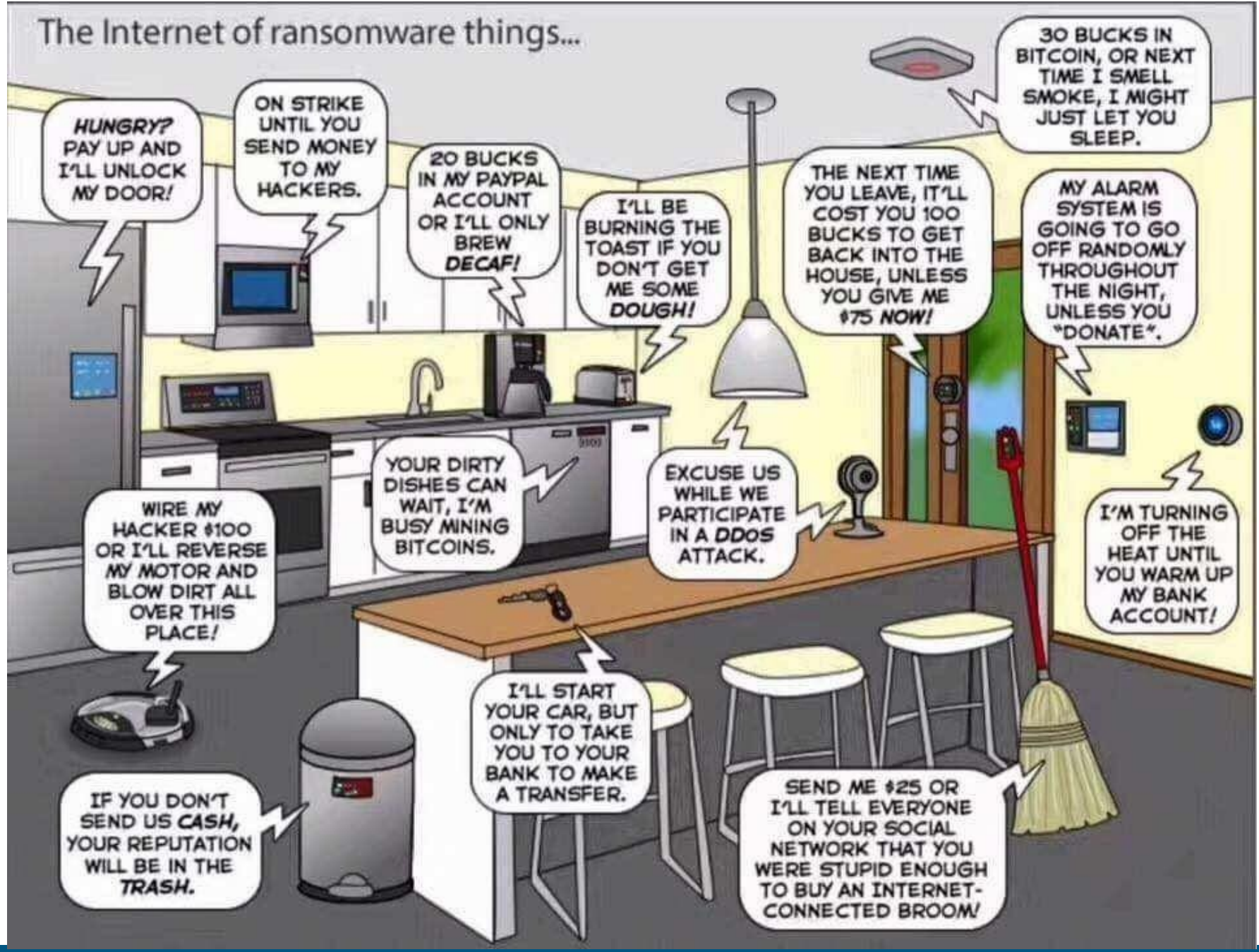
The Internet of ransomware things...
HUNGRY? PAY UP AND I'LL UNLOCK MY DOOR!
ON STRIKE UNTIL YOU SEND MONEY TO MY HACKERS.
20 BUCKS IN MY PAYPAL ACCOUNT OR I'LL ONLY BREW DECAF!
I'LL BE BURNING THE TOAST IF YOU DON'T GET ME SOME DOUGH!
30 BUCKS IN BITCOIN, OR NEXT TIME I SMELL SMOKE, I MIGHT JUST LET YOU SLEEP.
THE NEXT TIME YOU LEAVE, IT'LL COST YOU 100 BUCKS TO GET BACK INTO THE HOUSE, UNLESS YOU GIVE ME $75 NOW!
MY ALARM SYSTEM IS GOING TO GO OFF RANDOMLY THROUGHOUT THE NIGHT, UNLESS YOU "DONATE".
YOUR DIRTY DISHES CAN WAIT, I'M BUSY MINING BITCOINS.
EXCUSE US WHILE WE PARTICIPATE IN A DDOS ATTACK.
I'M TURNING OFF THE HEAT UNTIL YOU WARM UP MY BANK ACCOUNT!
WIRE MY HACKER $100 OR I'LL REVERSE MY MOTOR AND BLOW DIRT ALL OVER THIS PLACE!
I'LL START YOUR CAR, BUT ONLY TO TAKE YOU TO YOUR BANK TO MAKE A TRANSFER.
IF YOU DON'T SEND US CASH, YOUR REPUTATION WILL BE IN THE TRASH.
SEND ME $25 OR I'LL TELL EVERYONE ON YOUR SOCIAL NETWORK THAT YOU WERE STUPID ENOUGH TO BUY AN INTERNET-CONNECTED BROOM!

Visual BACnet

October 4, 2017

Smart Campus Summit

OPTiGO NETWORKS

Monica McMahen

Marketing Manager

Optigo Networks

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778-874-7473

OPTiGO NETWORKS

Optigo Connect™

Visual BACnet

info@optigo.net

THE INTERNET of THINGS

Connected “Things” forecast

6.4B in 2016

20.8B in 2020

Trends

- Campuses adding lighting to BACnet Networks

Trends

- Campuses adding lighting to BACnet Networks
- Comfort technology being requested (e.g. Comfy)

Trends

- Campuses adding lighting to BACnet Networks
- Comfort technology being requested (e.g. Comfy)
- Universities communicating

Back to LinkedIn.com

My Groups Discover Search

College & University BACnet Networks

10 members

Manage

Start a conversation with your group

Enter a conversation title...

Conversations Jobs

Ryan Hughson
Strategic Solutions Manager - Optigo Networks

7h

Integrate or separate by UDP port?

Do you integrate all BACnet devices on your network or do you separate them by UDP port? If you separate them, what is separated? By service? By vendor? By building?

ABOUT THIS GROUP

Colleges and Universities around the world have huge multi-vendor BACnet networks and many similar challenges. This group is a space to collaborate, share wins, and discuss challenges. Ask as many questions as you like, and provide your own success stories that we can learn from!

MEMBERS 10 members

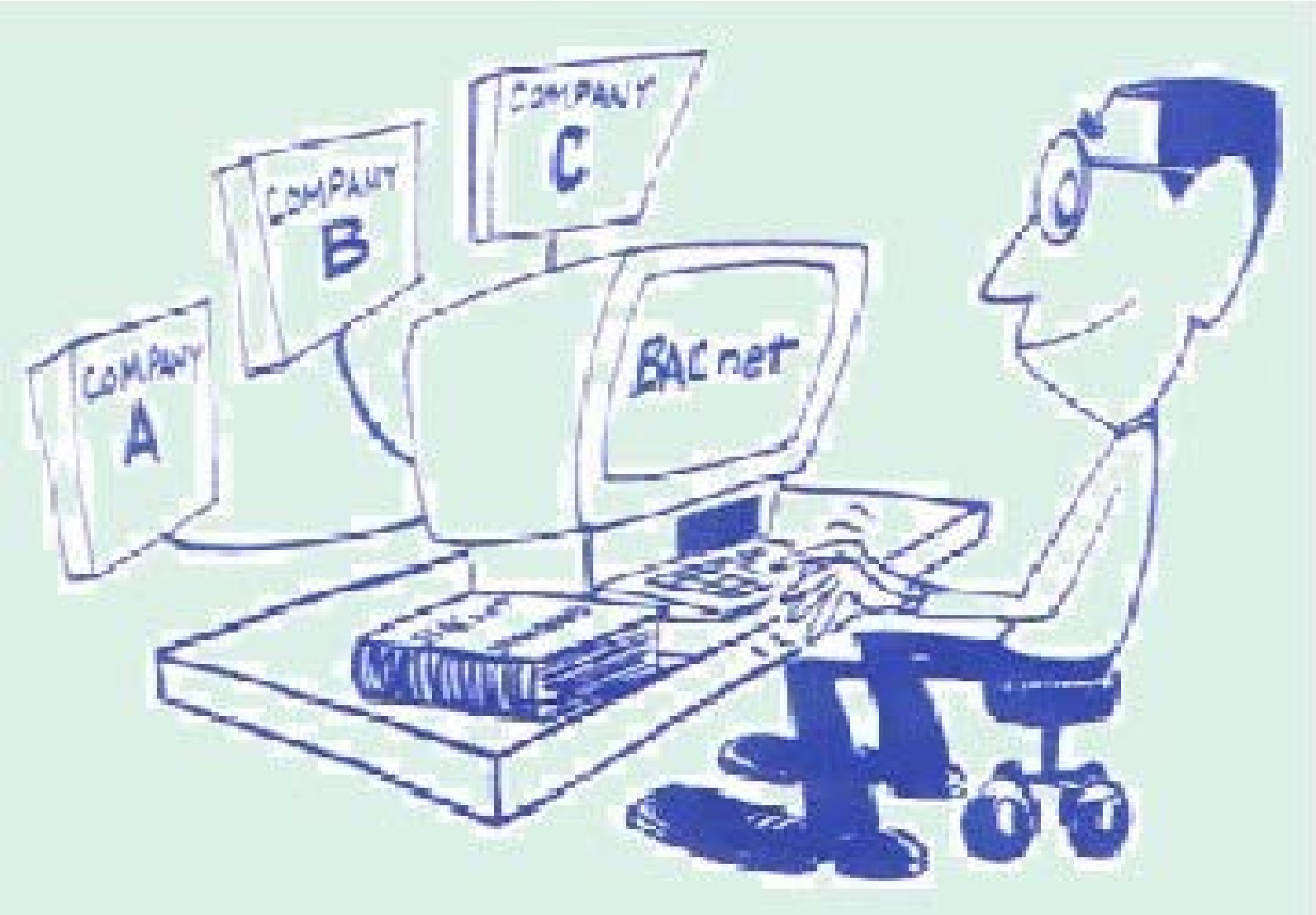
Invite others

Trends

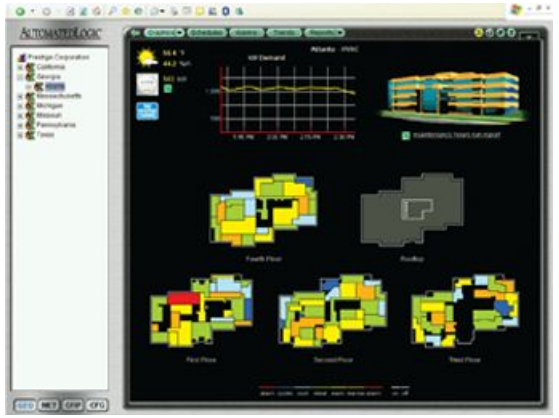
- Campuses adding lighting to BACnet Networks
- Comfort technology being requested (e.g. Comfy)
- Universities communicating
- Vendors partnering instead of producing in house

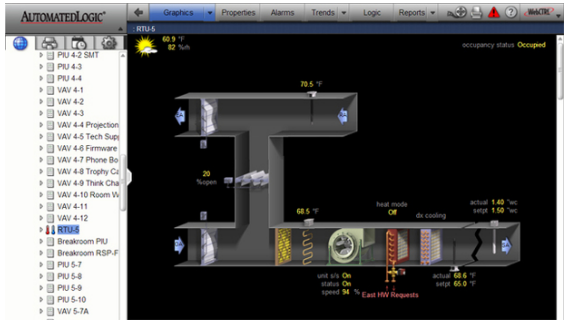
Trends

- Campuses adding lighting to BACnet Networks
- Comfort technology being requested (e.g. Comfy)
- Universities communicating
- Vendors partnering instead of producing in house
- Vendors pointing fingers

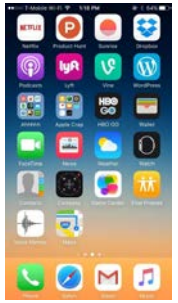

COMPANY
A
COMPANY
B
COMPANY
C
BACnet

How many vendors do you have?

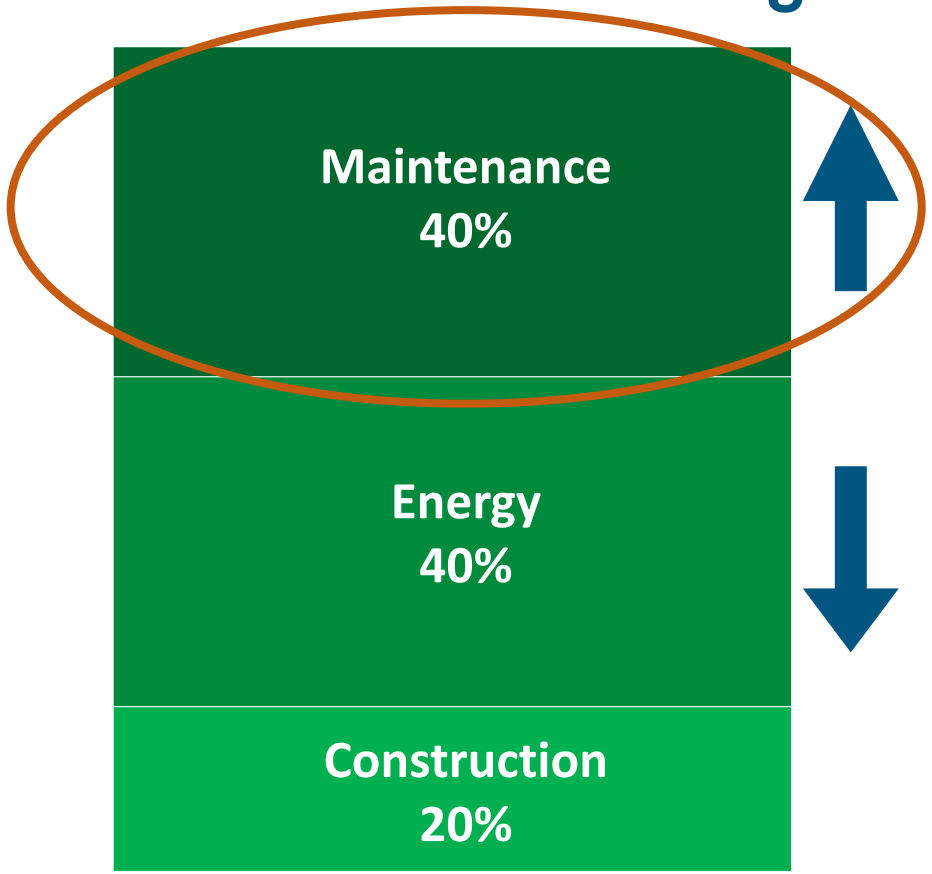




- Multi-vendors
- Constant change
- Data rich



Lifetime Cost of Buildings



Commissioning

Sequences

Ins / Outs

Networks??

PRINCETON
UNIVERSITY

OPTiGO NETWORKS
Visual BACnet
Princeton_Before.pcapng
Network Health
16%
Critical
Diagnostic Check Summary
12
Passed
4
Warnings
6
Failed
Statistics Summary
156
451
0
6217
581
2
0
395
Traffic Rate
Diagnostic Checks
Who-Is Checks
Device Checks
Network Checks
Alarm and Event Checks
Notes

OPTiGO NETWORKS
Visual BACnet
Upload Credits: 30 Analyses
Report Credits: 0 Reports
Using 267.7 MB / 10.0 GB
My Files
Administration
Princeton_Af...
Summary
BACnet Browser
Device Browser
Traffic by Source
Traffic by Source De...
Traffic by Type
Response Times
Princeton_After.pcap
Start Time: 2016-11-18 14:51:03 UTC
End Time: 2016-11-18 14:53:54 UTC
Duration: 00:02:50
Summary
BACnet Traffic
Non-BACnet Traffic
Data:
5.26 MB
Total
30.87 kB/s
Average Rate
Packets:
37,525
Total
220.01 pps
Average Rate
Breakdown:
35.84%
Non-BACnet
54.07%
BACnet
10.09%
BACnet Bcast
Network Health
41%
Critical
Diagnostic Check Summary
20
Passed
4
Warnings
3
Failed
Statistics Summary
165
Networks Observed
706 pps
Peak BACnet Burst
5477 pkts
Trend Logs
556
Devices Observed
404 pps
Peak Non-BACnet Burst
0 pkts
BBMD Traffic
Traffic Rate
Nov 18, 2016 06:51:03 - Nov 18, 2016 06:53:54
600 pps
400 pps
200 pps
0 pps
06:51:30
06:52:00
06:52:30
06:53:00
06:53:30
BACnet
Non-BACnet
Diagnostic Checks
Basic PDF
Adv PDF
Who-Is Checks 2 0 0
Device Checks 3 0 0
Network Checks 6 1 3
Detected Circular Networks 0 sources
Low Hop Count 0 sources
Duplicate Networks 1 networks
Duplicate BBMD Detection 0 BBMDs
Unresponsive Routers 0 routers
Busy Routers 0 routers
BACnet Broadcast Traffic 22.2 pps
Reject-To-Networks 0 networks
Longest Response Time 2.85 s
Max Networks Exceeded 165 networks
Alarm and Event Checks 5 1 0
Confirmed-COV Traffic
Notes
Version 1.9.1
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Need help? Chat with us!

Human + Machine Assisted Health Monitoring

Visual BACnet

Powered by Optigo Networks

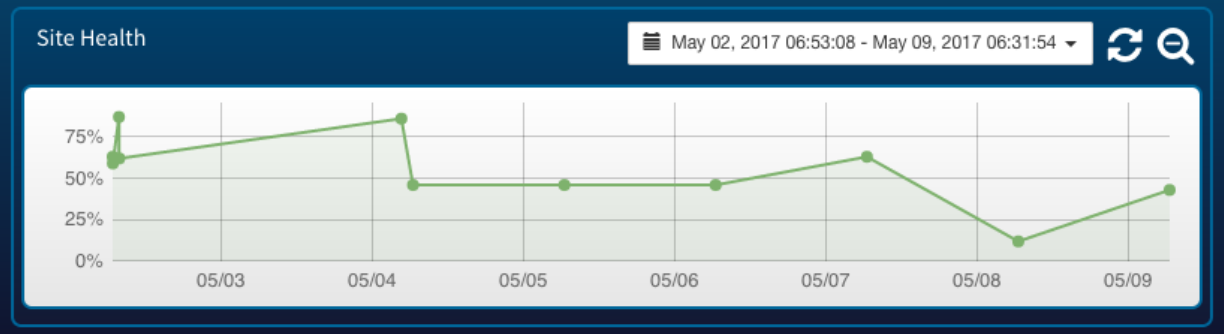
www.VisualBACnet.com

Site: Example Site Alert Settings

Location:

File: 2017_05_09_9_15_00_AM.pcap

Description:



Network Profile

770 ▼30 Devices

187 Networks

Network Health

43%

▲31%

22 ▲3 Passed

3 Warnings

3 ▼3 Failed

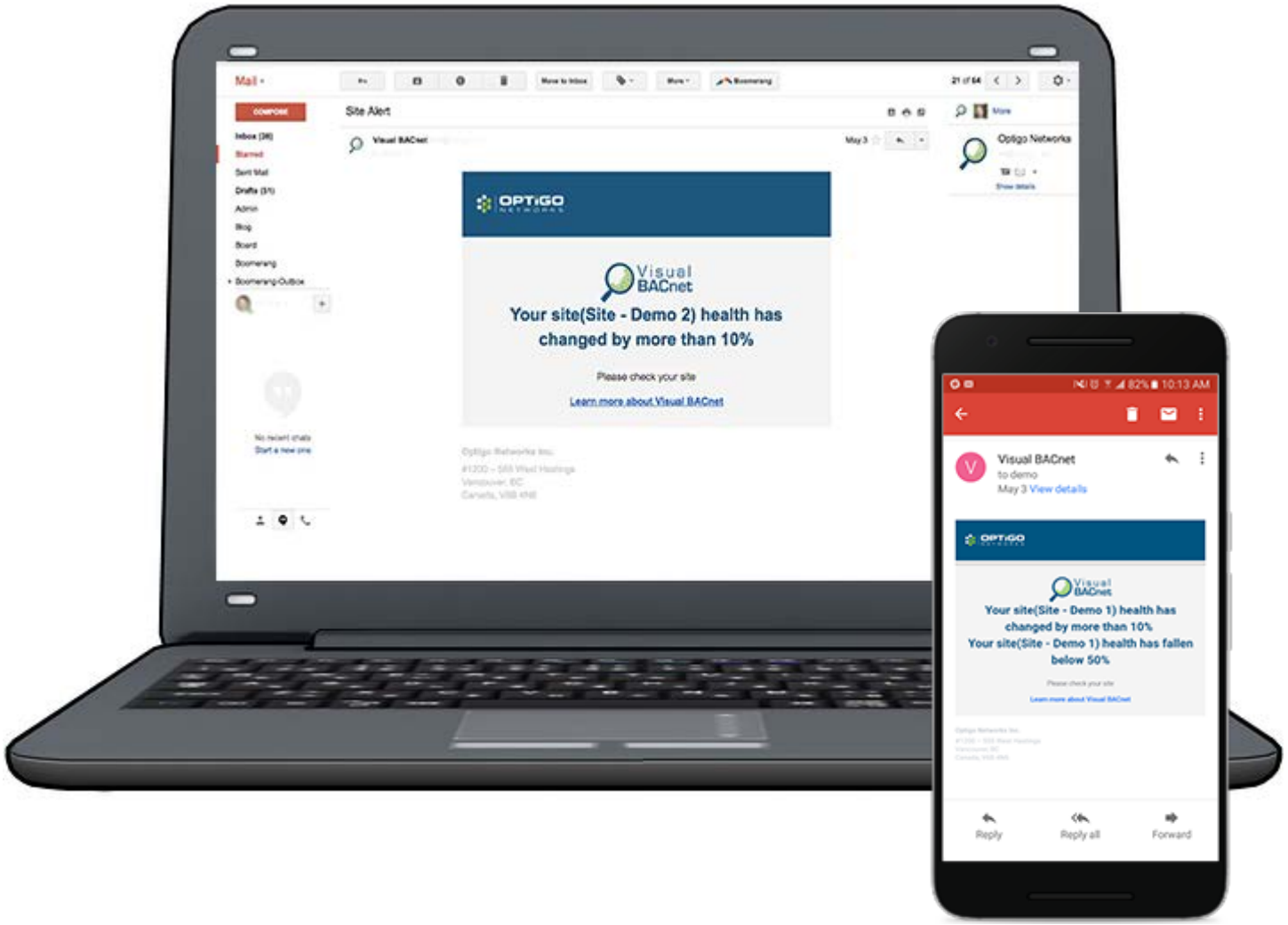
Network Traffic:

16 kB/s ▼1kB/s Average Rate

88 % ▲0% BACnet

1 % ▼0% Non-BACnet

File	Network Health	Upload Date	Username	Location	Comments	
2017_05_09_9_15_00_AM.pcap	43	2017-05-09 06:31:54	demo@optigo.net			VIEW
2017_05_08_9_15_00_AM.pcap	12	2017-05-08 06:31:55	demo@optigo.net			VIEW
2017_05_07_9_15_00_AM.pcap	63	2017-05-07 06:31:16	demo@optigo.net			VIEW
2017_05_06_9_15_01_AM.pcap	46	2017-05-06 06:31:21	demo@optigo.net			VIEW
2017_05_05_9_15_01_AM.pcap	46	2017-05-05 06:31:43	demo@optigo.net			VIEW


Site Alert
Visual BACnet
Your site(Site - Demo 2) health has changed by more than 10%
Please check your site
Learn more about Visual BACnet
Optigo Networks
Visual BACnet
to demo
May 3 View details
Your site(Site - Demo 1) health has changed by more than 10%
Your site(Site - Demo 1) health has fallen below 50%
Reply
Reply all
Forward

OPTiGO NETWORKS
Visual BACnet
Upload Credits: 11 Analyses
Report Credits: Unlimited Reports
Using 600.2 MB / 10.0 GB
My Files
555_w_hastin...
Summary
BACnet Browser
Device Browser
Traffic by Source
Traffic by Source De...
Traffic by Type
Response Times
555_w_hastings.pcapng
Start Time: 2016-08-24 22:51:47 UTC
End Time: 2016-08-24 23:00:27 UTC
Duration: 00:08:39
Summary
BACnet Traffic
Non-BACnet Traffic
Data:
172.96 kB
Total
333 B/s
Average Rate
Packets:
1,869
Total
3.59 pps
Average Rate
Breakdown:
0 %
Non-BACnet
100 %
BACnet
0 %
BACnet Bcast
Network Health
81%
Warning
Diagnostic Check Summary
23
Passed
3
Warnings
1
Failed
Statistics Summary
6
Networks Observed
205 pps
Peak BACnet Burst
0 pkts
Trend Logs
118
Devices Observed
0 pps
Peak Non-BACnet Burst
494 pkts
BBMD Traffic
Traffic Rate
Aug 24, 2016 15:51:47 - Aug 24, 2016 16:00:27
200 pps
150 pps
100 pps
50 pps
0 pps
15:52
15:53
15:54
15:55
15:56
15:57
15:58
15:59
16:00
Diagnostic Checks
Basic PDF
Adv PDF
Who-Is Checks
1
1
0
Global Who-Is
2 pkts
Global Who-Is-Router
0 sources
Device Checks
2
0
1
Duplicate Device ID
0
Unresponsive Devices
5 devices
Duplicate Source Address
0
Network Checks
9
1
0
Detected Circular Networks
0 sources
Low Hop Count
0 sources
Duplicate Networks
0 networks
Duplicate BBMD Detection
0 BBMDs
Unresponsive Routers
0 routers
Busy Routers
Contact Us
Version 1.9.5
Copyright © 2017 Optigo Networks
Terms of Use Privacy Policy

My Files
After_4
Summary
BACnet Browser
Device Browser
Traffic by Source
Traffic by Source De...
Traffic by Type
Response Times

371	10.120.86.102:47808	10.121.80.100:47808	120.963	54
548	10.120.86.102:47808	10.121.80.100:47808	135.112	108
2998	10.120.86.102:47808	10.121.80.100:47808	114.331	168
6117	10.120.86.102:47808	10.121.80.100:47808	145.875	100
6362	10.120.86.102:47808	10.121.80.100:47808	190.19	108
6743	10.120.86.102:47808	10.121.80.100:47808	110.055	111
7316	10.120.86.102:47808	10.121.80.100:47808	136.762	7
10964	10.120.86.102:47808	10.121.80.100:47808	56.561	195
11079	10.120.86.102:47808	10.121.80.100:47808	116.213	227
11356	10.120.86.102:47808	10.121.80.100:47808	94.598	34

Showing 1 to 11 of 11 entries

Previous 1 Next

Packets for - 10.120.86.102:47808 -> 10.121.80.100:47808

Show 25 entries Search:

Time	Number	PDU Type	Service Choice
2016-09-23 22:14:30 UTC	11	Confirmed-REQ	readPropertyMultiple
2016-09-23 22:14:30 UTC	12	Reject	N/A

Frame Info - # 12

- ▶ Frame 12: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface 0
- ▶ Ethernet II, Src: CiscoInc_ff:fc:08 (00:08:e3:ff:fc:08), Dst: Dell_3a:61:ba (90:b1:1c:3a:61:ba)
- ▶ Internet Protocol Version 4, Src: 10.120.86.102, Dst: 10.121.80.100
- ▶ User Datagram Protocol, Src Port: 47808, Dst Port: 47808
- ▼ BACnet Virtual Link Control
  - Type: BACnet/IP (Annex J) (0x81)
  - Function: Original-Unicast-NPDU (0x0a)
  - BVLC-Length: 4 of 13 bytes BACnet packet length
- ▼ Building Automation and Control Network NPDU
  - Version: 0x01 (ASHRAE 135-1995)
  - ▶ Control: 0x08, Source specifier
  - Source Network Address: 2404
  - Source MAC Layer Address Length: 1
  - SADR: 5
- ▼ Building Automation and Control Network APDU
  - ▶ 0110 .... = APDU Type: Reject (6)

PennState

Near Real-time

Monitor Every Network

Free Visual BACnet Monitoring

Now until November 30th

Monica McMahen
monica@optigo.net

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www.optigo.net
1-888-629-6559

1200 – 555 West Hastings St
Vancouver, BC
Canada, V6B 4N6

Proposed Agenda

- [2 mins] Intro. Who am I and Who is Optigo Networks
  - Agenda.
- [5 mins] Industry trends
  I'll give a glimpse to the few growing trends that we have been observing
  - The Internet of Things: Bye bye homogeneity. Welcome mixture of the Bests.
  - Maintenance is becoming most expensive piece of building life
- [15 mins] Visual BACnet: high quality BACnet systems at lower setup and maintenance costs
  This part will be more "sales" and I'll introduce Visual BACnet. I'll do a demo and show how this can used to provide higher quality systems and services at a lower cost. I'll use Norm and Josh as examples.
  - BACnet troubleshooting for everyone (not just for experts)
  - Speed up troubleshooting with industry-expert diagnostic checks
  - Comprehensive health reports
  - Ask to ALC: integrate VB into WebCTRL
- [10 mins] The Internet of Things is an opportunity for additional revenue
  - Health monitoring of multi-vendor building operation systems (BAS+)
  - Become the Multi-service Building Network platform (master integrator)
  - Cybersecurity audits and services
- [3 mins] Summary & closing