AIR TRAFFIC AND NAVIGATION SERVICES SOC. LTD REPUBLIC OF SOUTH AFRICA



REQUEST FOR PROPOSALS: ATNS/TPQ/RFP049/FY23.24/ATFM REPLACEMENT SYSTEM

APPOINTMENT OF A SERVICE PROVIDER FOR THE SUPPLY, DELIVERY, INSTALLATION AND COMMISSIONING OF AN AIR TRAFFIC FLOW MANAGEMENT (ATFM) SYSTEM TO BE DEPLOYED IN THE MAIN ATC CENTRE AT THE O. R. TAMBO INTERNATIONAL AIRPORT (JOHANNESBURG). THE PROJECT WILL FURTHERMORE ESTABLISH A DISASTER RECOVERY PLATFORM (TO BE DEPLOYED IN THE FAOR SSS BUILDING) AND A TRAINING SIMULATION PLATFORM (AT THE ATNS ATA (ATNS AVIATION TRAINING ACADEMY.

Volume 2 - Appendix

TECHNICAL SPECIFICATIONS APPENDIX

FEBRUARY 2024

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1 APPENDIX-A: EXAMPLES OF REPORTS

1.1 Eurocontrol Report Example

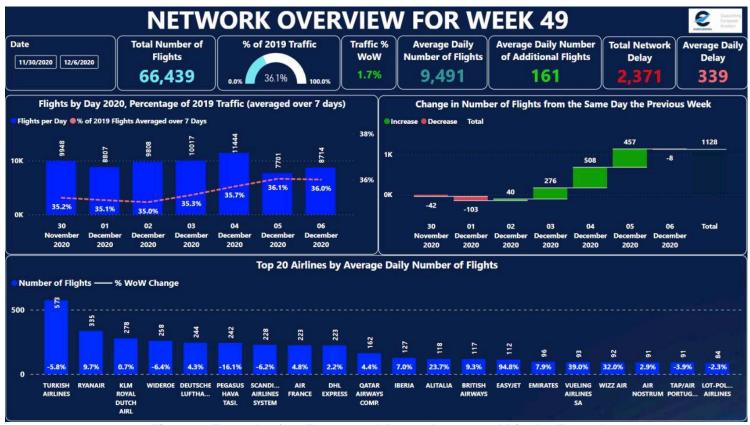


Figure 1: Example of an Eurocontrol Report Layout and Display Example

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ATNS/TPQ/RFP049/FY23.24/ATFM REPLACEMENT SYSTEM

1.2 TMI Monthly Statistics Report Example

DATE	DAY	FA M	STATION	PERIOD	ACTUAL	AVERAGE DELAY IN MINUTES	ARR/ADR	TMI DURATIO N	REMARK	TMI Discrepancies	wx	ATC STAFF	ILS CLBR	OTHER
01-Mar-20	Sun													
		Υ	FACT	0700-1100	0700-1100	8.3 / 6.3	24/HR COMBINED	04:00	SE82 - STAFF SHORTAGE			04:00		
02-Mar-20	Mon	Υ	FAOR	1300-1800	1300-1800	14.4 / 16.1	25/HR ARRIVALS	05:00	WA84 - TMI DUE TO FORECASTED WEATHER.		05:00			1 1
03-Mar-20	Tue	Υ	FAOR	0600-0700	TMI CANCELLED BEFORE 0600	N/A	32/HR COMBINED	00:00	WA84 - TMI DUE TO FORECASTED WEATHER.	TMI CANCELLED BEFORE 0600				
		Υ	FACT	1100-1800	1100-1800	23.0 / 28.2	19/HR COMBINED	07:00	SA83 - STAFF SHORTAGE			07:00		
04-Mar-20	Wod	Υ	FAOR	0500-0600	0500-0600	11.3 / 5.8	16/HR COMBINED	01:00	WA84 - TMI DUE TO FORECASTED WEATHER.		01:00			
04-Mai-20	weu	Υ	FAOR	0600-0800	TMI CANCELLED BEFORE 0600	N/A	23/HR COMBINED	00:00	WA84 - TMI DUE TO FORECASTED WEATHER.	TMI CANCELLED BEFORE 0600				
05-Mar-20	_													
06-Mar-20	_													
07-Mar-20														
08-Mar-20														
09-Mar-20	Mon													
10-Mar-20														
11-Mar-20	Wed	Υ	FACT	0800-1300	0800-1300	6.7 / 11.2	20/HR COMBINED	05:00	TE82 - RADAR MAINTENANCE					05:00
12-Mar-20	Thu	Υ	FAOR	1300-1800	1300-1800	13.8 / 12.6	24/HR ARRIVALS	05:00	WA84 - TMI DUE TO FORECASTED WEATHER.		05:00			
13-Mar-20														
14-Mar-20														
15-Mar-20														
16-Mar-20														
17-Mar-20														
18-Mar-20														
19-Mar-20														
20-Mar-20														
21-Mar-20														
22-Mar-20														
23-Mar-20														
24-Mar-20														igsquare
25-Mar-20														
26-Mar-20														
27-Mar-20														
28-Mar-20														
29-Mar-20	_													
30-Mar-20	Mon													
								27:00:00			11:00:00	11:00:00	0:00:00	5:00:00

Figure 2: TMI Monthly Statistics Report Example

1.3 Daily Departure Flight List Report Example

ACID	ADED	ADES	CTOT-IOBT	CTI TVDE	ETD	СТОТ	ATOT	IOBT	POBT	CTOT DORT	ATOT-CTOT
FDR245	FAOR			SUB	A14/1004						33
LNK214	FAOR		_	GDP	A14/1004 A14/1016						25
		•									
LNK306	FAOR		_	SUB	A14/1009						16
LNK853	FAOR			GDP	A14/1018	•	•	•	•		23
LNK300	FAOR			GDP	A14/1014						17
MN0529	FAOR	FAPE	20	GDP	A14/1011	14/1000	14/1011	14/0940	14/0950	10	11
B0T212	FAOR	FBMN	48	SUB	A14/1019	14/1003	14/1019	14/0915	14/0925	38	16
CAW413	FAOR	FACT	167	GAAP	C14/1057	14/1012	-	14/0725	14/1010	2	-
LNK757	FAOR	FAUT	13	GDP	A14/1022	14/1013	14/1022	14/1000	14/1010	3	9
CAW103	FAOR	FACT	24	GDP	A14/1026	14/1014	14/1026	14/0950	14/0955	19	12
CAW275	FAOR	FYWH	17	GDP	A14/1028	14/1017	14/1028	14/1000	14/1005	12	11
SFR216	FAOR	FACT	21	GDP	A14/1024	14/1021	14/1024	14/1000	14/1005	16	3
SAA6728	FAOR	FLKK	23	GAAP	A14/1043	14/1023	14/1043	14/1000	14/1005	18	20
TAM8059	FAOR	SBGR	5	ECR	A14/1030	14/1025	14/1030	14/1020	14/1020	5	5
LNK735	FAOR	FAPM	12	GAAP	A14/1035	14/1027	14/1035	14/1015	14/1020	7	8
KQA761	FAOR	НКЈК	20	GDP	A14/1032	14/1030	14/1032	14/1010	14/1015	15	2
LNK443	FAOR	FARB	56	GAAP	A14/1013	14/1031	14/1013	14/0935	14/1031	0	-18
KEM828	FAOR	FY0A	148	SUB	A14/1036	14/1033	14/1036	14/0805	14/1045	-12	3
MN0139	FAOR	FACT	10	GDP	A14/1036	14/1035	14/1036	14/1025	14/1030	5	1
SAA048	FAOR	FLHN	119	SUB	A14/1038	14/1039	14/1038	14/0840	14/1020	19	-1
EXY227	FAOR	FAHS	28	SUB	A14/1045	14/1043	14/1045	14/1015	14/1050	-7	2
ZSSG0	FAOR	FAKR	15	GDP	A14/1007	14/1045	14/1007	14/1030	14/0935	70	-38
CAW417	FAOR	FACT	7	SUB	A14/1047	14/1047	14/1047	14/1040	14/1047	0	0
FDRTRN1A	FAOR	FASI	31	SUB	C14/1056	14/1051		14/1020	14/1020	31	_
EXY769	FAOR	FBSK	13	GDP	C14/1058	14/1053	_	14/1040	14/1105	-12	_
CAW211	FAOR	FALE	10	SCOR	A14/1052	•			•		-3
								,			

Figure 3: Flight List Daily Departure Report Example for FAOR Airport (Full Date should be included as well)

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1.4 Daily Arrival Flight List Report Example

IACTD.	ADED	ADEC	CTOT TORT	CTL TVDE	ETD	ATOT	CTOT	TORT	DORT	CTOT DODT	ATOT CTOT	ГТА
ACID			CTOT-IOBT	_		ATOT	СТОТ	IOBT	POBT		ATOT-CTOT	
SAA143	FQMA	FAOR	12	GDP	A14/0915	14/0915	14/0942	14/0930	14/0935	7	-27	A14/1003
CAW234	FAPE	FAOR	20	GDP	A14/0843	14/0843	14/0845	14/0825	14/0830	15	-2	E14/1003
LNK852	FAHS	FAOR	-5	SUB	A14/0921	14/0921	14/0915	14/0920	14/0925	-10	6	E14/1005
SAA550	FALE	FAOR	6	SUB	A14/0919	14/0919	14/0916	14/0910	14/0915	1	3	E14/1006
ZSCCK	FAOR	FAOR	98	ECR	A14/0906	14/0906	14/0858	14/0720	14/0834	24	8	A14/1008
EXY766	FBSK	FAOR	10	GDP	A14/0933	14/0933	14/0946	14/0936	14/0930	16	-13	A14/1010
CAW222	FALE	FAOR	-4	SUB	A14/0929	14/0929	14/0926	14/0930	14/0935	-9	3	A14/1015
FDR335	FAMK	FAOR	3	SUB	A14/0916	14/0916	14/0916	14/0913	14/0920	-4	0	E14/1015
FDR250	ZZZZ	FAOR	-1	SUB	A14/0900	14/0900	14/0854	14/0855	14/0855	-1	6	A14/1018
EXY006	FABL	FAOR	-18	SUB	A14/0942	14/0942	14/0942	14/1000	14/0942	0	0	E14/1027
MN0258	FALE	FAOR	10	SUB	A14/0948	14/0948	14/0950	14/0940	14/0950	0	-2	A14/1031
LNK810	FAPP	FAOR	10	GDP	A14/1000	14/1000	14/1005	14/0955	14/1000	5	-5	A14/1034
REU341	FMEE	FAOR	10	GDP	A14/0642	14/0642	14/0650	14/0640	14/0645	5	-8	E14/1037
AZW467	FVRG	FAOR	1	GAAP	A14/0909	14/0909	14/0906	14/0905	14/0905	1	3	A14/1039
OPM104	FAPN	FAOR	2	GAAP	A14/1011	14/1011	14/1002	14/1000	14/1035	-33	9	E14/1042
EXY272	FALE	FAOR	-8	SUB	A14/0950	14/0950	14/0952	14/1000	14/1005	-13	-2	E14/1043
ETH809	HAAB	FAOR	10	GDP	A14/0559	14/0559	14/0600	14/0550	14/0555	5	-1	E14/1049
SIA479	FACT	FAOR	13	GDP	A14/0920	14/0920	14/0853	14/0840	14/0845	8	27	E14/1053
SEY061	FSIA	FAOR	25	GDP	A14/0635	14/0635	14/0541	14/0516	14/0530	11	54	A14/1056

Figure 4: Flight List Daily Arrival Report Example for FAOR Airport (Full Date should be included as well)

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2 **APPENDIX B: NMMS REPORTS**

2.1 **Device Availability Report Example**

Device Availability and Model

Over the 1 day period Wed Jun 15 2005 - Thu Jun 16 2005 No prime time is set for this report

Generated at 13:25 on Thu Jun 16 2005 for the Regional view

Monitored Device Details							
Name	Component Availability (Mean)	Model					
hali	80%	7200					
10.18.149.72	85%	s72033_rp					
10.18.149.75	85%	WS-C6509.Cisco					
10.18.149.76	85%	Summit48i					
10.18.149.73	91%	WS-C6509.Cisco					
10.18.149.74	93%	WS-C6509.Cisco					
10.18.149.77	100%	Summit48i					
10.18.3.34	100%	2611					
10.44.1.2	100%	WSX5302					
IP129	100%	x86					
12.18.149.140	100%	x86					
12.18.149.150	100%	2GG					
12.18.149.163	100%	WS-C6513					
12.18.149.164	100%	WS-C3750G-24TS-S					
12.18.149.161	100%	C2950					
12.18.149.160	100%	4000					
12.18.149.158	100%	1XX					
12.18.149.152	100%	Layer2-7					
IOALANA	100%	7513					
HUKO	100%	7507					
10.44.1.13	100%	2503					
10.44.1.12	100%	WS-C3550-24-EMI					
10.44.1.7	100%	WS-C5505					
10.44.1.5	100%	WS-C5505					
10.44.1.6	100%	WS-C5505					
12.18.149.165	100%	C2950lre					
12.18.149.162	100%	C2950					
12.18.149.149	100%	1XX					

Figure 5: Device Availability Report Example

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2.2 Device Port Details

Port Details

Over the 1 day period Tue Sep 13 2005 - Wed Sep 14 2005 No prime time is set for this report Generated at 12:11 on Wed Sep 14 2005 for the Regional view

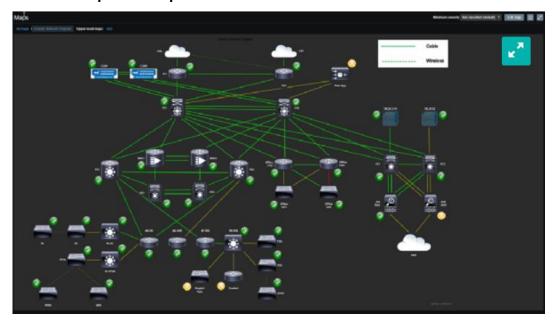
Port Details				
Device Name	Interface Description	Host Mac	Host IP	Host Name
Switch_2	[11/23] EYE Server 03	0F10111220F8	10.49.110.10	saphire
Switch_2	[11/22] London PC-368	0F10111220FC	10.54.98.10, 10.54.98.11, 10.54.98.12, 10.54.98.13, 10.54.98.14, 10.54.98.15, 10.54.98.16, 10.54.98.17, 10.54.98.18, 10.54.98.18, 10.54.98.20, 10.54.98.21, 10.54.98.22, 10.54.98.23, 10.54.98.24, 10.54.98.25, 10.54.98.26	saphire diamond gold ruby copper zircon brass pewter emeralds steel iron platinum zinc silver aluminium
Switch_2	[11/21] London PC-367	0F1011123151	-	
Switch_2	[11/20] London PC-366	0F1011121476	10.54.98.178	bluejohn
Switch_2	[11/19] London PC-365	0F1011121FE2	10.49.80.14	ruby
Switch_2	[11/18] London PC-364	0F1011122002	10.49.80.73	coal
Switch_2	[11/17] 10.54.166.173		-	
Switch_2	[11/16] 10.54.166.175	-	-	
Switch_2	[11/15] 10.54.166.220	-	-	
Switch_2	[11/14] 10.54.166.228	0F1011122115	10.54.166.228	nickel
Switch_2	[11/13] 10.54.166.222	0F10111213FE	10.54.166.222	lead
Switch_2	[2]sl0			
Switch_2	[11/12] 10.54.166.218	0F1011122087	10.54.166.218	tungsten
Switch_2	[11/11] 10/100 utp ethernet (cat 3/5)	-	-	
Switch_2	[11/10] London PC-363		-	
Switch_2	[11/9] London PC-362	0F1011122001	10.49.80.72	titanium
Switch_2	[11/8] London PC-361	0F101112146B	10.54.98.88	tantalum
Switch_2	[11/7] London Fax	0F1011121419	10.54.98.155	colombium

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Figure 6: Port Details Report Example

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2.3 Network Report Example



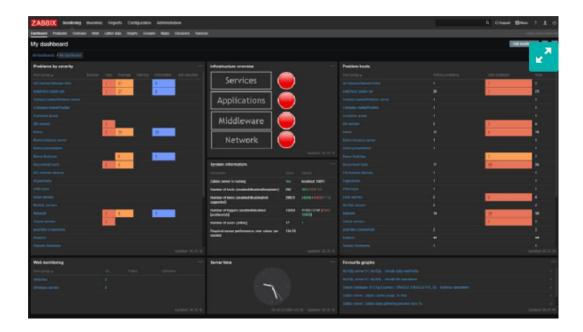


Figure 7: Network Component Interconnection Layout and Multiple Distributed Devices Report Example

3 APPENDIX-C: CHART AND GRAPH REPORTING EXAMPLES

3.1 Network Incoming and Outgoing Traffic Bar-Graph Report Example

BAR_REPORTS1.PNG

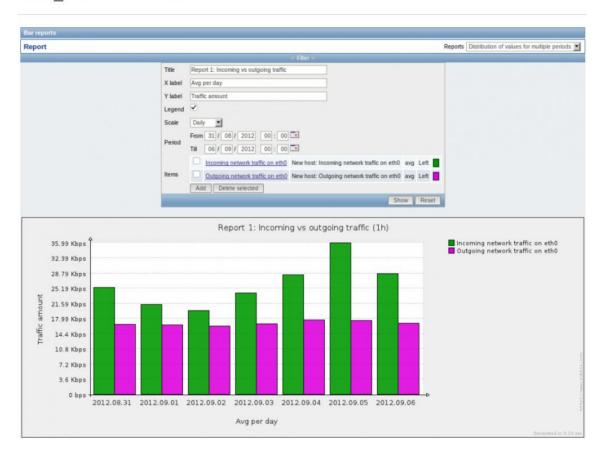


Figure 8: Network Incoming and Outgoing Traffic Bar-Graph Report Example

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3.2 Host Distribution and CPU & Memory Yearly Trend Reports Examples

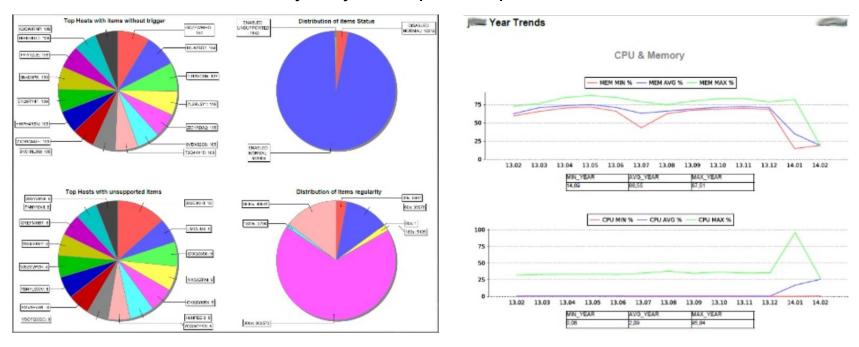


Figure 9: Host Distribution and CPU & Memory Yearly Trend Reports Examples

4 APPENDIX-D: DASHBOARD EXAMPLES

4.1 Device Summary Dashboard Example

ATNS/TPQ/RFP049/FY23.24/ATFM REPLACEMENT SYSTEM



Figure 10: Device Summary Report Example

4.2 VM Information Dashboard Example

ATNS/TPQ/RFP049/FY23.24/ATFM REPLACEMENT SYSTEM

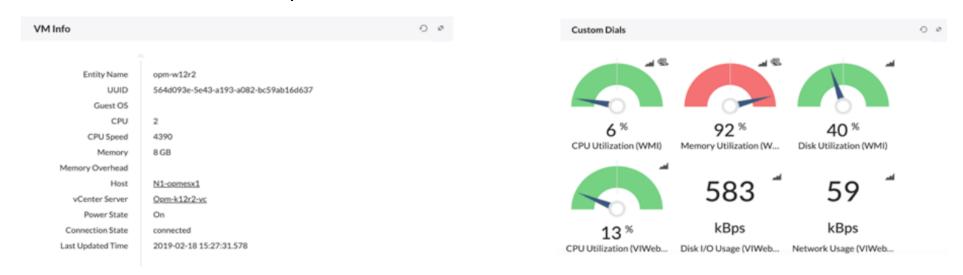


Figure 11: VM Information Report Example

4.3 Network Dashboard Example

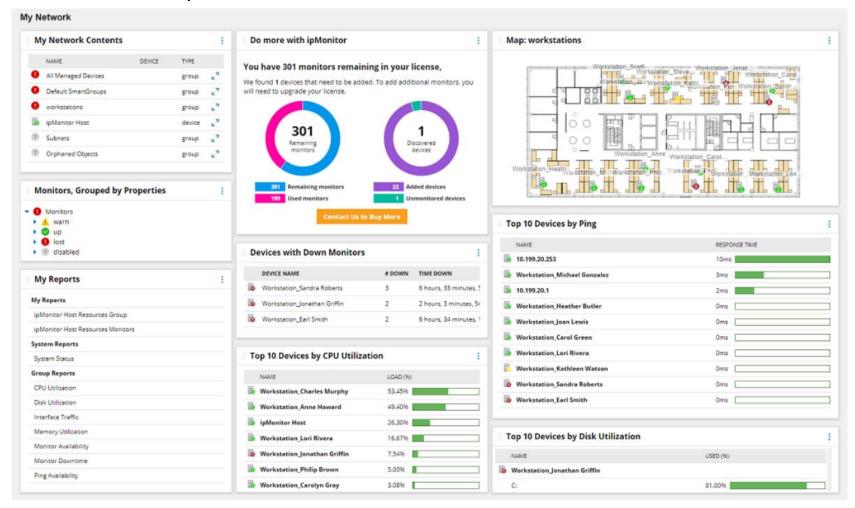


Figure 12: Network Dashboard and Network Report Example

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All Nodes with XX Traffic Top 10 Application Response Time (Time to First Byte) EXPORT HELP Top 10 Network Response Time (TCP Handshake) EXPORT HELP LAST 24 HOURS LAST 24 HOURS AVG NETWORK RESPONSE TIME QUE APPLICATION Zoom 30m 1h 2h Zoom 30m 1h 2h ALAB-CLUSTER-01.I Amazon Web Services 225.21 ms 165.11 ms A1-Inventory Amazon Web Services 151.22 ms 303.30 ms e cur-dhop Amazon Web Services 450.01 ms 155.60 ms 10:00 1 Env-skicun Bittorrent 857.65 ms 180.14 ms MORRILL01 384.06 ms 150.55 ms OLAB-CLUSTER-011... 315.34 ms 3.02 s @ Web_Server_01 809.94 ms 839.89 ms MS SOL 1.00 : SOL_Server_01 4.03 s 278.92 ms g syd-app-stack-sql MS SOL 2.72.6 269.19 ms ● LAB-CLUSTER-01.I... Salesforce 381.93 ms 310.62 ms 0:00 ms 0.00 ms 4:00 PM 8:00 PM 11 Mar 4:00 AM Displaying objects 1 - 10 of 23 11 Mar **QoE Nodes Exceeding Thresholds** LAST 24 HOURS QUE APPLICATION PEAK VALU GOE APPLICATION PEAK VALUE AVG NETWORK RESPONSE TIME **GOE APPLICATION** FTP & FTP 3.02 a MS SOL 3.35 s 4.19 5 @ LAB-CLUSTER-01.L. 3.07 * 315.34 ms Bittorrent 857.65 ms 6.06 s ■ Ø THTTP 809.94 ms 1.99 s SQL_Server_01 4.03 s 278.92 ms MTTP 839.89 ms 1.94 s Dropbox 384.06 ms 1.54 s e nyd-app-stack-sql MS SOL 2.72 s 269.19 ms Skype 643.29 ms 4.38 s XMPP 347,14 ms 854.92 ms O LAB-CLUSTER-011... Skype 124.97 ms 1.01 s SNMP 354.25 ms 4.70 s E & TP 499.55 ms 315,34 ms III & MS SOL 274.40 ms 396.08 ms Skype 303.93 ms 3.19 s Quality of Experience Application Stats MANAGE HELP Salesforce 4311 272.01 ms Amazon Web Services 271.34 ms 1.36 s LAST 24 HOURS, BY APPLICATION Snapchat 267.13 ms 1.34 s Salesforce 270.83 ms 998.81 ms TOTAL DATA VOLUME Amazon Web Services 199.39 ms 3.24 s QUE APPLICATION SNMP 221.29 ms 1.27 s YouTube 197.35 ms 1.82 s Snapchat 199.27 ms 568.73 ms Amazon Web Services 199.39 ms 271.34 ms 313.2 MB 9.8 k Bittorrent 857.65 ms 180.14 mp 5.7 GB 1.4 M EXPORT HELP **Top 10 Transactions** EXPORT HELP Top 10 Data Volume

Performance Dashboard Example

Figure 13: Performance Report Example

LAST 24 HOURS

Zoom 30m 1h 2h

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150.55 ms

839.89 ms

3.02 s

384.06 ms

315.34 ms

715.4 MB

814.7 MB

254

122

26.5 k

LAST 24 HOURS

Zoom 30m 1h 2h

T Dropbox

⊕ FTP

HTTP

4.5 Host Service Status Dashboard Example



Figure 14: Host Service Status Report Example

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4.6 Complete Dashboard Example

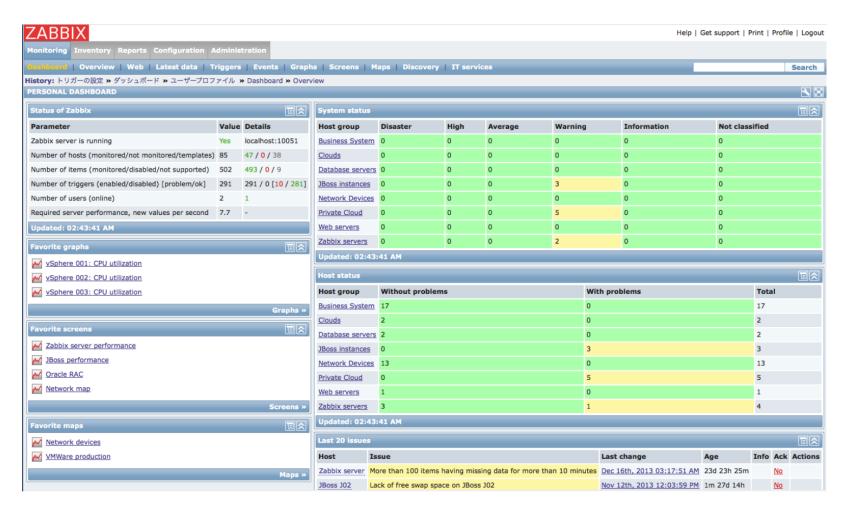


Figure 15: Complete Dashboard Example

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