

Evergreen Availability Monitoring

with a focus on Nagios

An introduction to monitoring the availability of your Evergreen installation.

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Evergreen Availability Monitoring

Scope of presentation

- What is Availability Monitoring?
- What to monitor & why to monitor it.
- When to alert.

Evergreen Availability Monitoring

*What is
Availability Monitoring?*

Evergreen Availability Monitoring

Availability Monitoring is the process of collecting data on critical system processes and providing notice upon deviation from set norms. (usually using a software tool or set of tools)

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Why would you want to?

- Recognize small events before they become critical.
- Decrease your reaction time to critical events within your Evergreen system.
- Have confidence in your systems are operating normally.

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Where would you run the tool?

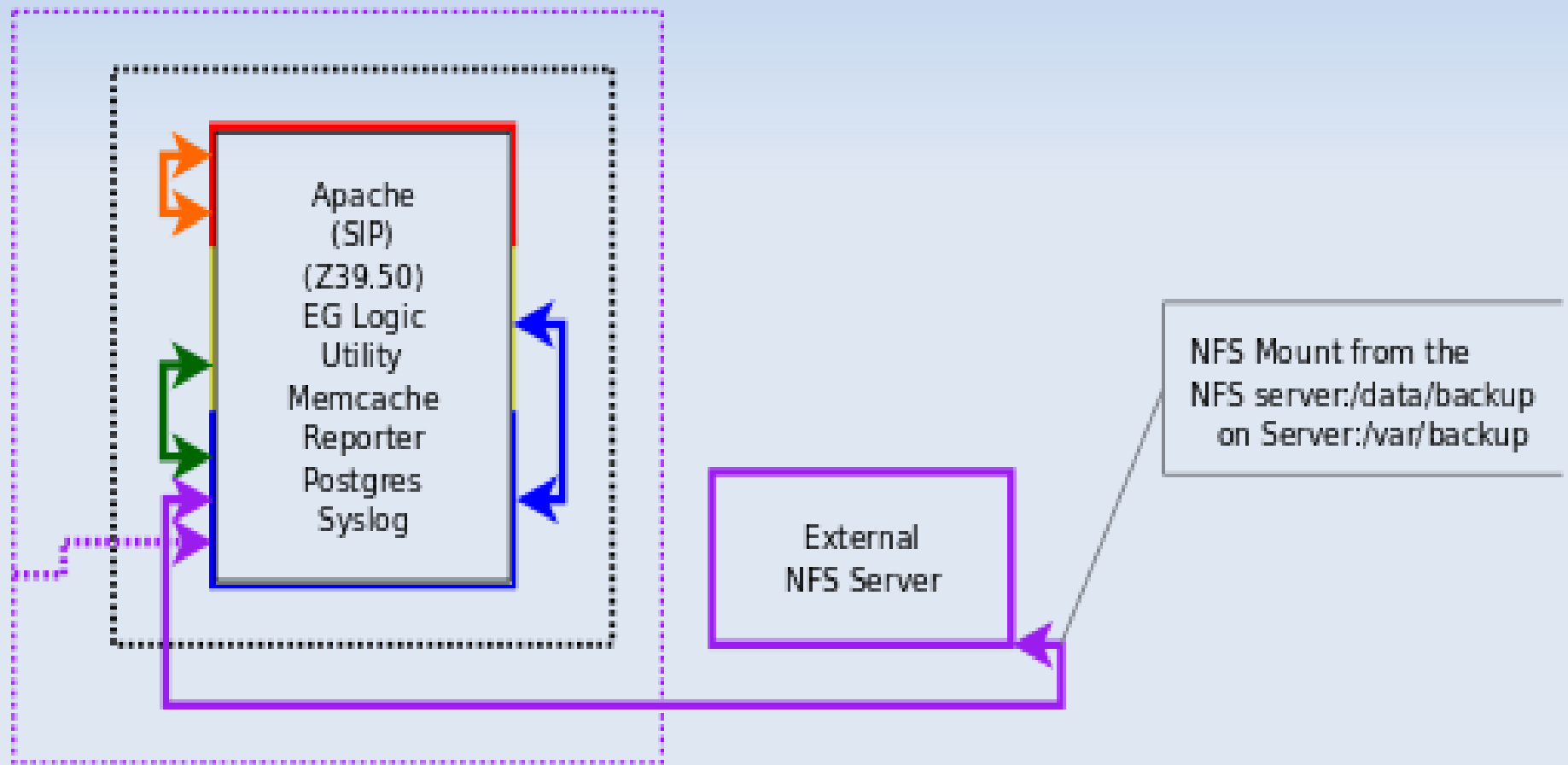
- Stand-alone server
(Virtual or Physical)
- Existing server
 - Utility server
 - Load balancer
 - Logging server

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What to monitor?

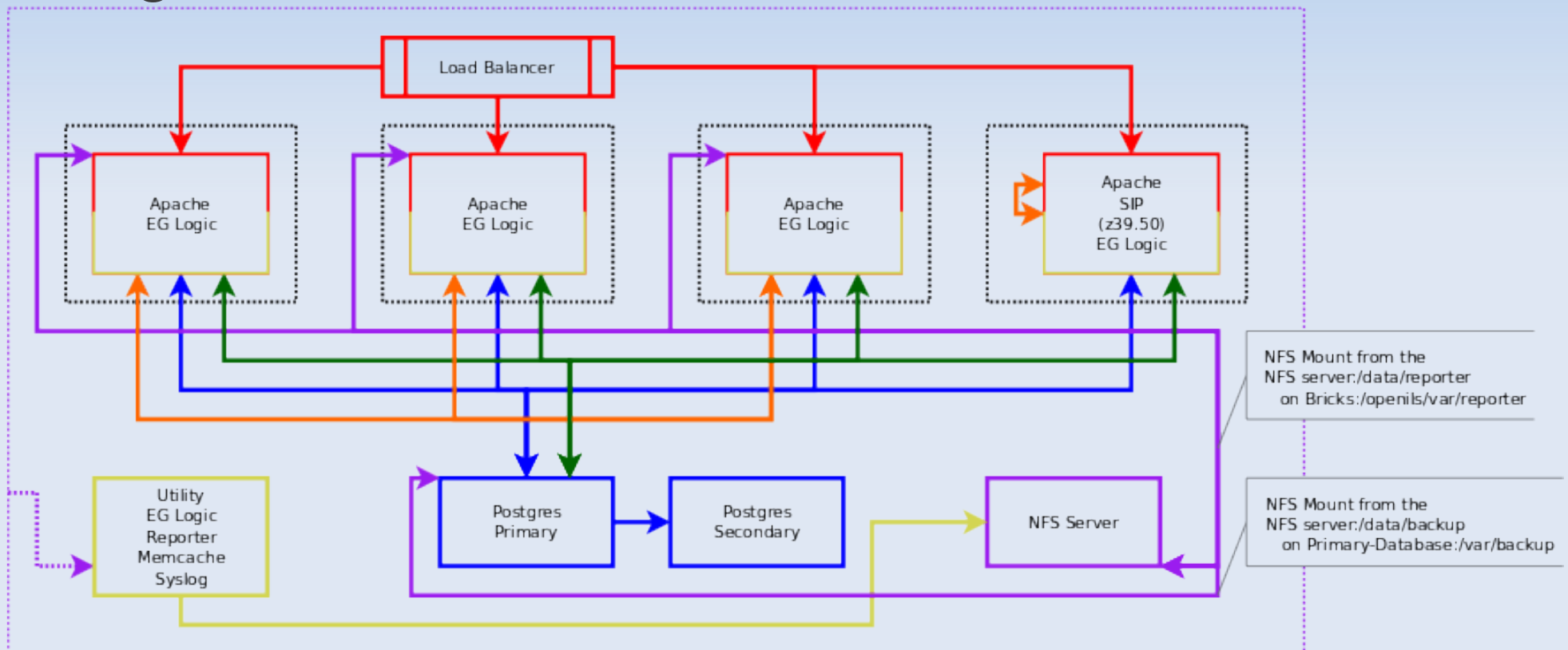
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Single-Server-Brick



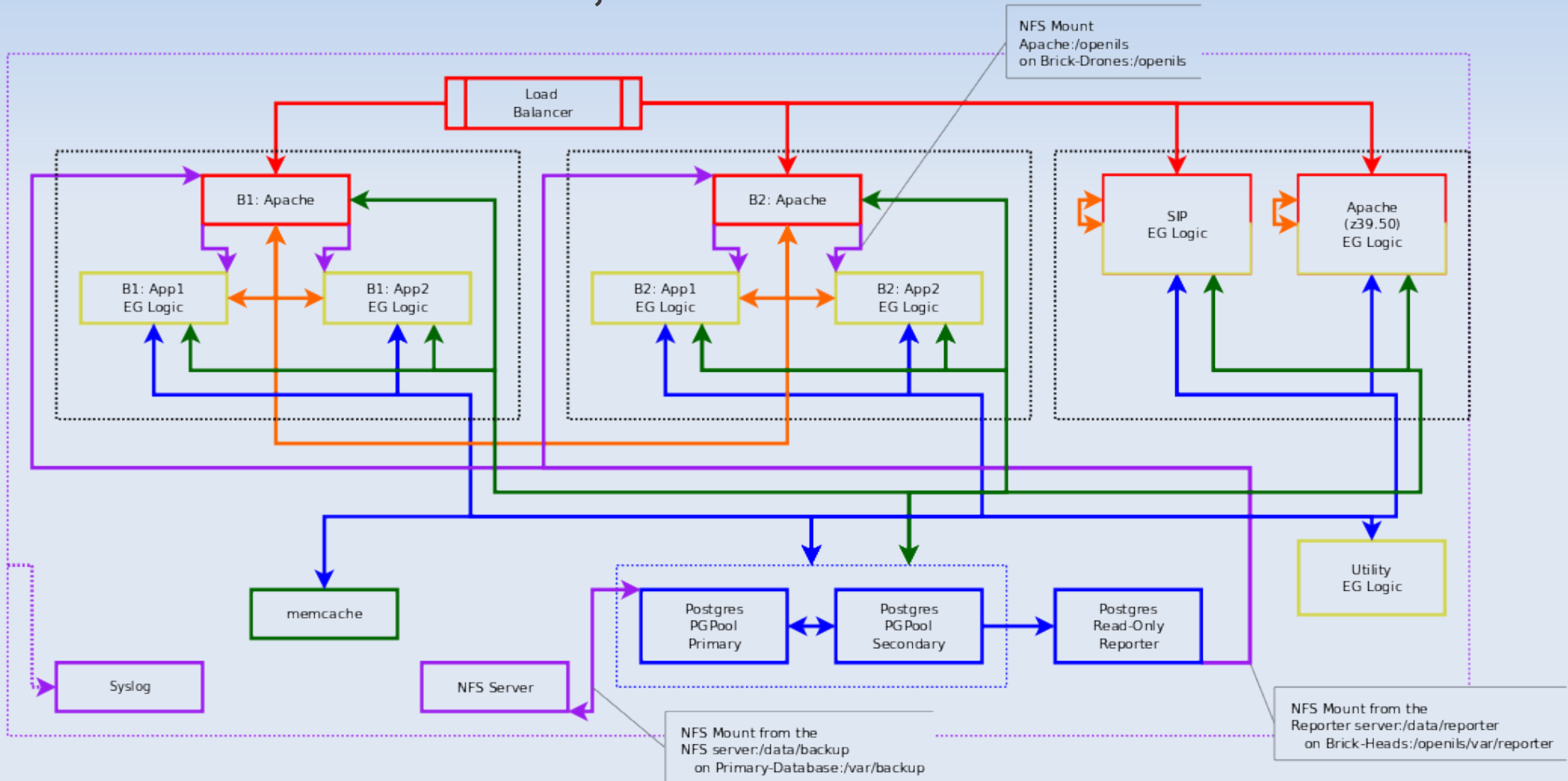
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Single-Server-Brick, Multi-Brick Cluster



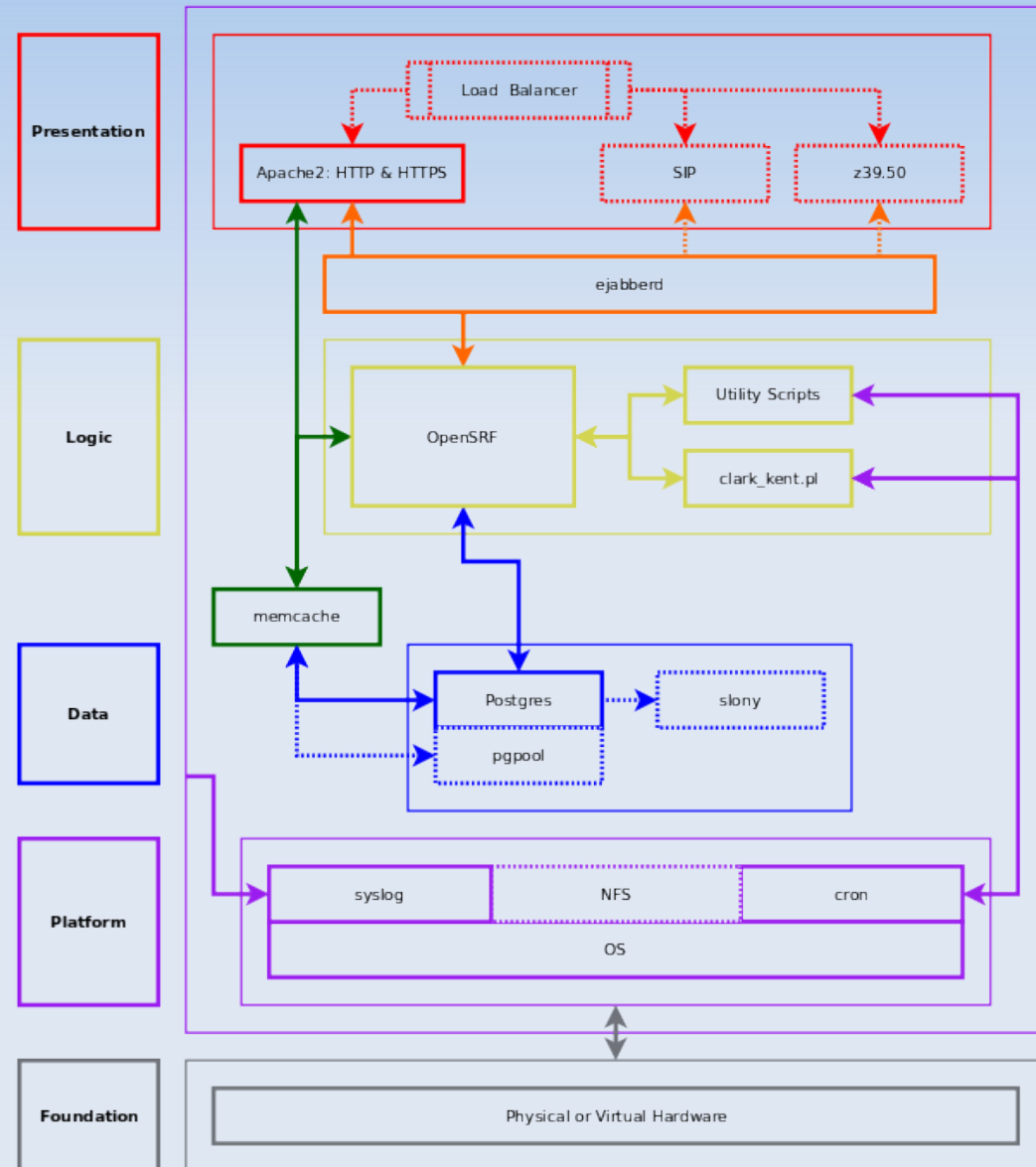
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Multi-Server-Brick, Multi-Brick Cluster



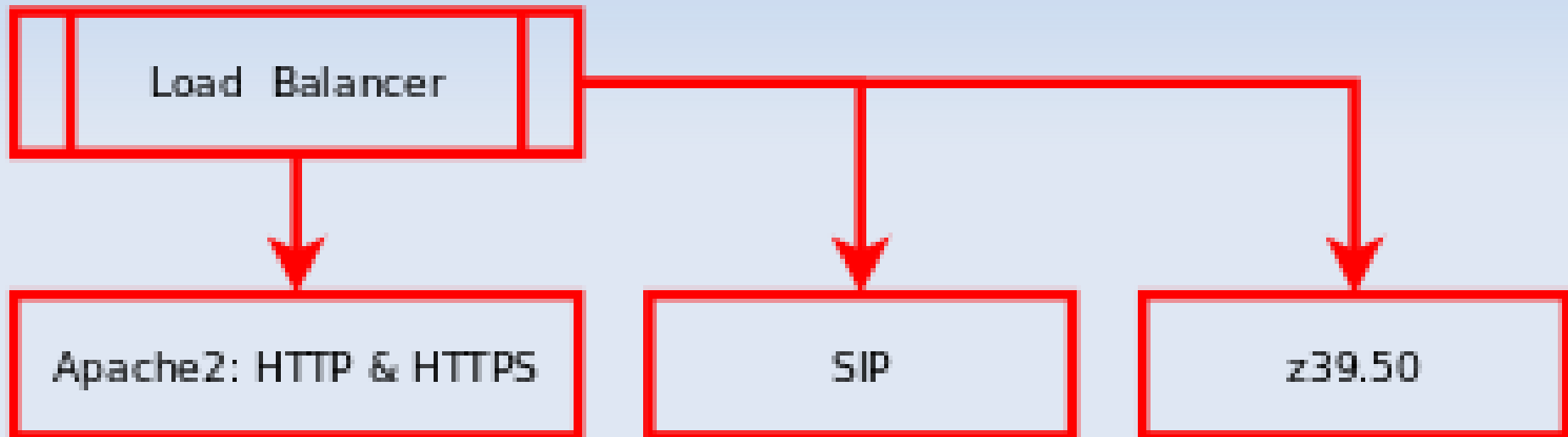
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Application Tiers



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Presentation Tier



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Presentation Tier

- Is Load Balancer process running?

Ldirectord

```
loadbalancer$ /usr/lib/nagios/plugins/check_procs -w 1:1 -c 1:1  
-C ldirectord  
PROCS OK: 1 process with command name 'ldirectord'
```

pound proxy

```
loadbalancer$ /usr/lib/nagios/plugins/check_procs -w 1:1 -c 1:1  
-C pound  
PROCS OK: 1 process with command name 'pound'
```

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Presentation Tier

- Is Apache process running, and is the port available?

```
brickhead1$ /usr/lib/nagios/plugins/check_procs -w 1:90 -c 1:99 -C apache2
```

```
PROCS OK: 22 processes with command name 'apache2'
```

```
brickhead1$ /usr/lib/nagios/plugins/check_tcp -p 80
```

```
TCP OK - 0.004 second response time on port 80|time=0.004000s;;;0.000000;10.000000
```

```
brickhead1$ /usr/lib/nagios/plugins/check_tcp -p 443
```

```
TCP OK - 0.000 second response time on port 443|time=0.000000s;;;0.000000;10.000000
```

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Presentation Tier

- Are there any processes consuming excess resources?

```
brickhead1$ /usr/lib/nagios/plugins/check_apache_cpu  
OK: Highest CPU process 1%
```

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Presentation Tier

- Is brick in rotation?

Ldirectord

```
nagios$ /usr/lib/nagios/plugins/check_http -H brickhead1 -u  
/ping.txt -r pong  
HTTP OK: HTTP/1.1 200 OK - 328 bytes in 0.002 second response  
time |  
time=0.001908s;;;0.000000 size=328B;;;0
```

pound proxy

```
loadbalancer$ /usr/lib/nagios/plugins/check_pound_rotation  
OK: 0 Services disabled.
```


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Presentation Tier

- Is the SIP service running, and is the port available?

```
sipserver$ /usr/lib/nagios/plugins/check_procs -w 1:20 -c 1:25 -a  
SIPServer.pm  
PROCS OK: 14 processes with args 'SIPServer.pm'
```

```
sipserver$ /usr/lib/nagios/plugins/check_tcp -p 6001  
TCP OK - 0.002 second response time on port  
6001|time=0.001714s;;;0.000000;10.000000
```

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Presentation Tier

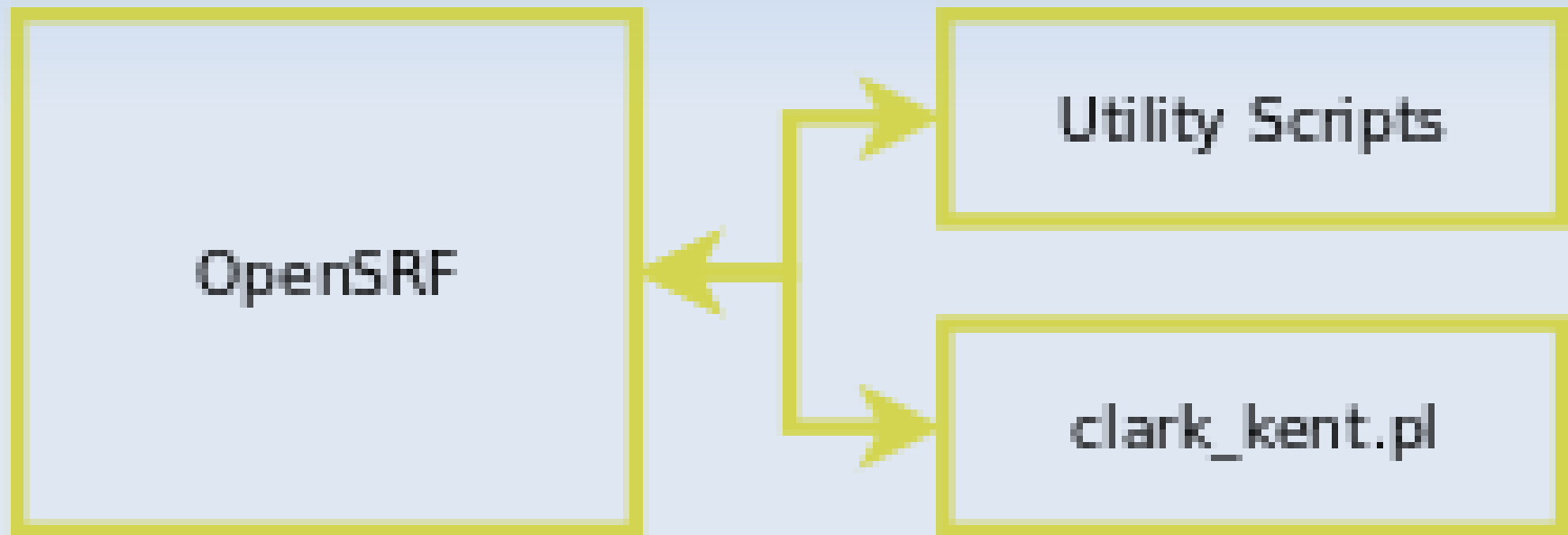
- Is the z39.50 service running, and is the port available?

```
z3950server$ /usr/lib/nagios/plugins/check_procs -w 1:20 -c 1:25  
-a simple2zoom  
PROCS OK: 2 processes with args 'simple2zoom'
```

```
z3950server$ /usr/lib/nagios/plugins/check_tcp -p 210  
TCP OK - 0.000 second response time on port  
210|time=0.000377s;;;0.000000;10.000000
```

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Logic Tier



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Logic Tier

- Does every brick have the proper number of OpenSRF drones?

```
syslog:~$ /usr/lib/nagios/plugins/parse-eg-stats.pl  
EG-STATS-COLLECTOR STATUS: OK!
```

(Assumes eg-stats-collector-remote.pl is setup)
WARN at 80% Listener usage
CRIT at 90% Listener usage; lost Listener

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Logic Tier

- Is `clark_kent.pl` running and is the LOCK file in place?

```
reporter:~$ /usr/lib/nagios/plugins/check_procs -w 1:50 -c 1:75  
-a "Clark Kent"  
PROCS OK: 1 process with args 'Clark Kent'
```

check_lock

```
reporter:~$ /usr/lib/nagios/plugins/check_lock /tmp/reporter-LOCK  
Clark  
OK: /tmp/reporter-LOCK exists and Clark running
```

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Logic Tier

- Are there Action Trigger Events pending?

check_at_pending

```
db:~$ /usr/lib/nagios/plugins/check_at_pending
OK:      3312 AT events pending
```

```
evergreen=# select count(*) from action_trigger.event where state
='pending';
 count
-----
      3312
(1 row)
```

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Logic Tier

- Does /tmp/action-trigger-LOCK* exist?
- If the file exists, is the process running?
- If the process is running, how long has it been running?

```
utility$ /usr/lib/nagios/plugins/check_lock /tmp/action-trigger-LOCK* \
    action-trigger-runner.pl
OK: /tmp/action-trigger-LOCK exists and action-trigger-runner.pl running

utility$ /usr/lib/nagios/plugins/check_file_age -w 3600 -c 5400 -f \
    /tmp/generate_fines-LOCK
FILE_AGE OK: /tmp/action-trigger-LOCK is 264 seconds old and 4 bytes
```

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Logic Tier

- Does /tmp/hold_targeter-LOCK exist?
- If the file exists, is the process running?
- If the process is running, how long has it been running?

```
utility$ /usr/lib/nagios/plugins/check_lock /tmp/hold_targeter-LOCK  
\  
  hold_targeter.pl  
OK: /tmp/hold_targeter-LOCK exists and hold_targeter.pl running  
  
utility$ /usr/lib/nagios/plugins/check_file_age -w 10800 -c 14400 \  
  /tmp/hold_targeter-LOCK  
FILE_AGE OK: /tmp/hold_targeter-LOCK is 84 seconds old and 5 bytes
```


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Logic Tier

- Does `/tmp/generate_fines-LOCK` exist?
- If the file exists, is the process running?
- If the process is running, how long has it been running?

```
utility$ /usr/lib/nagios/plugins/check_lock \  
  /tmp/generate_fines-LOCK  fine_generator.pl  
OK: /tmp/generate_fines-LOCK exists and fine_generator.pl running  
  
utility$ /usr/lib/nagios/plugins/check_file_age -w 3600 -c 5400 \  
  -f /tmp/generate_fines-LOCK  
FILE_AGE OK: /tmp/generate_fines-LOCK is 156 seconds old and 4  
bytes
```

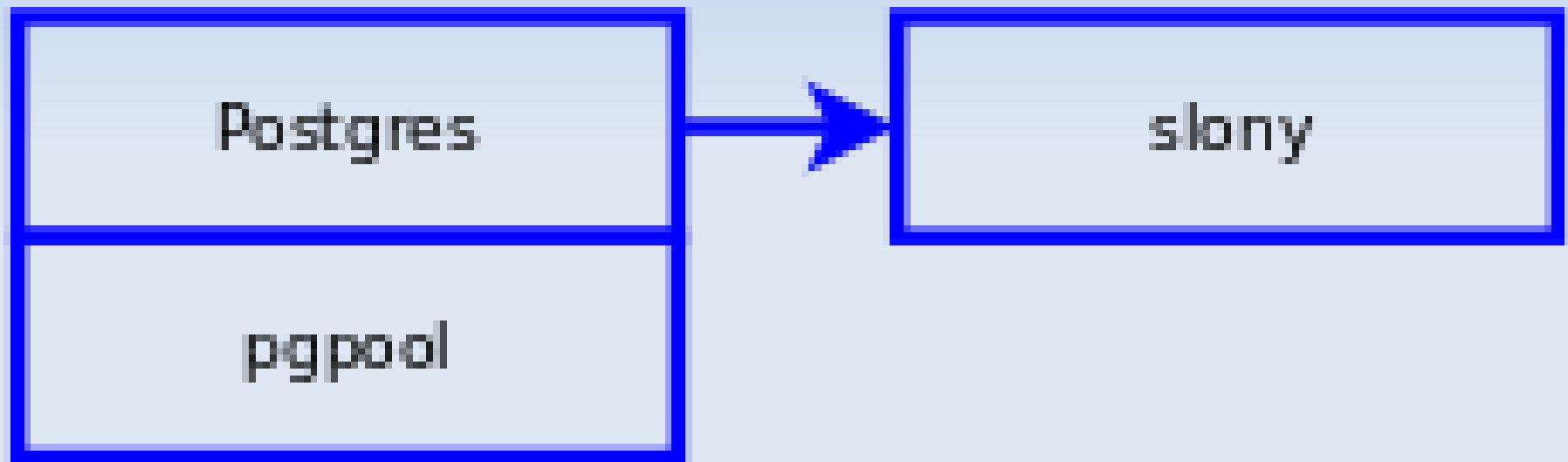
- `check_file_age`

Note: stock `check_file_age` presents CRIT for missing file, evergreen processes on Utility needs OK for missing file.

```
...  
# Check that file exists (can be directory or link)  
unless (-e $opt_f) {  
    print "FILE_AGE OK: File not found - $opt_f\n";  
    exit $ERRORS{'OK'};  
}  
...
```

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Data Tier



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Data Tier

- Is postgres running, and is it responding on its port?

```
db$ /usr/lib/nagios/plugins/check_procs -w1:700 -c1:800 -a  
postgres  
PROCS OK: 422 processes with args 'postgres'
```

```
db$ /usr/lib/nagios/plugins/check_tcp -p 5432  
TCP OK - 0.000 second response time on port  
5432|time=0.000093s;;;0.000000;10.000000
```

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Data Tier

- Is pgpool running, and is it responding on its port?

```
db$ /usr/lib/nagios/plugins/check_procs -w1:900 -c1:1000 -a  
pgpool  
PROCS OK: 802 processes with args 'pgpool'
```

```
db$ /usr/lib/nagios/plugins/check_tcp -p 9999  
TCP OK - 0.000 second response time on port  
9999|time=0.000092s;;;0.000000;10.000000
```

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Data Tier

- How many database back-ends are available?
postgres

```
db$ /usr/lib/nagios/plugins/check_backends2  
OK: postgresql backends = 387
```

How did we get here?

```
db$ grep max_connections /etc/postgresql/9.1/main/postgresql.conf  
max_connections = 800
```

```
db$ ps ax|grep -v grep | grep -c postg  
387
```

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Data Tier

- How many database back-ends are available?

pgpool

```
db$ /usr/lib/nagios/plugins/check_backends2 600 pool
OK: pgpool backends = 282
```

How did we get here?

```
db$ grep num_init_children /etc/pgpool-II/pgpool.conf
num_init_children = 800

db$ ps ax|grep -v "wait\|grep" | grep -c pgpool
282
```

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Data Tier

- Is slony running, and is there any replication lag?

```
db1$ /usr/lib64/nagios/plugins/check_procs -c2:2 -C slon  
PROCS OK: 2 processes with command name 'slon'
```

```
db2$ /usr/lib64/nagios/plugins/check_procs -c2:2 -C slon  
PROCS OK: 2 processes with command name 'slon'
```

```
db2$ /usr/lib64/nagios/plugins/check_slon  
OK: Slony Replication In Sync: st_lag_num_events = 1
```


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Data Tier

- Are the WAL archives current?
- Is the nightly database snapshot current?

```
db$ /usr/lib/nagios/plugins/check_file_age -w 3600 -c 7200 -f  
/var/backup/wal  
FILE_AGE OK: /var/backup/wal is 123 seconds old and 475136 bytes  
  
db$ /usr/lib/nagios/plugins/check_file_age -w 90000 -c 180000  
-f \  
/var/backup/snapshot/  
FILE_AGE OK: /var/backup/snapshot/ is 35060 seconds old and 4096  
bytes
```

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Data Tier

- Are there any long running queries?

```
db$ /usr/lib/nagios/plugins/check_dbquery  
OK: Longest query running for over (0 rows) hours
```

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Meta Tiers



memcache



ejabberd

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Meta Tiers

- Is Memcache running, and is the port available?

```
memcache$ /usr/lib/nagios/plugins/check_procs -w1:5 -c1:5 -C  
memcached  
PROCS OK: 1 process with command name 'memcached'  
  
memcache$ /usr/lib/nagios/plugins/check_tcp -p 11211  
TCP OK - 0.000 second response time on port  
11211|time=0.000000s;;;0.000000;10.000000
```

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Meta Tiers

- Is ejabberd running, and is the port available?

```
{bricks|utility|sip}$ /usr/lib/nagios/plugins/check_procs -w1:5  
-c1:5 -a ejabberd  
PROCS OK: 1 process with args 'ejabberd'
```

```
{bricks|utility|sip}$ /usr/lib/nagios/plugins/check_tcp -p 5222  
TCP OK - 0.004 second response time on port  
5222|time=0.004000s;;;0.000000;10.000000
```

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Meta Tiers

- Are there any "NOT CONNECTED TO THE NETWORK" errors in the logs?

```
syslog$ /usr/lib/nagios/plugins/check_notconnected  
OK: 0 NOT CONNECTEDs returned this hour.
```

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Meta Tiers

- Are there an excessive number of NULLS in the logs?

```
syslog$ /usr/lib/nagios/plugins/check_null sc  
OK: 0 NULLs returned in the past 15 minutes (Top server this  
hour: )
```

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Platform Tier

syslog	NFS	cron
OS		

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Platform Tier

- Are all the NFS mounts in place?
- Are any of them stale?

```
app$ /usr/lib/nagios/plugins/check_mountpoints  
/openils/var/web/reporter  
OK: all mounts were found ( /openils/var/web/reporter)  
  
app$ /usr/lib/nagios/plugins/check_nfs_mounts.pl  
NFS OK: All mounts available.
```

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Platform Tier

- How is the system load?

```
{all-servers}:~$ /usr/lib/nagios/plugins/check_load -w 3 -c 4
OK - load average: 0.00, 0.00, 0.00|load1=0.000;3.000;4.000;0;
    load5=0.000;3.000;4.000;0; load15=0.000;3.000;4.000;0;
```

Simple load calculation:

CRIT = [number of cores]

WARN = [number of cores.8]*

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Platform Tier

- How much swap is in use?

```
{all-servers}$ /usr/lib/nagios/plugins/check_swap -w75% -c50%  
SWAP OK - 100% free (2047 MB out of 2047 MB)  
|swap=2047MB;1535;1023;0;2047
```

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Platform Tier

- How much free space is available on the local filesystems?

```
{all-servers}$ /usr/lib/nagios/plugins/check_disk -w 20% -c 10%  
-p /  
DISK OK - free space: / 16087 MB (84% inode=92%);|  
/=3040MB;16121;18136;0;20152
```

```
db$ /usr/lib/nagios/plugins/check_disk -w 20% -c 10% -p  
/var/lib/postgresql  
DISK OK - free space: /var/lib/postgresql 58917 MB (57%  
inode=99%);| /var/lib/postgresql=43428MB;81876;92111;0;102346
```

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Platform Tier

- Are there any "Out of Memory, xxxx Process killed" errors in the logs?

```
syslog$ ./usr/lib/nagios/plugins/check_prockill  
OK: 0 'Killed process' errors this hour
```

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When to monitor?

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False Positives

- Thresholds set too high/low
- Known events:
 - db snapshots
 - log housekeeping
 - intensive reports
 - SIP restarts

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monitoring vs. alerting

- `check_period`
 - defined in the service checks
 - defines when to monitor
- `notification_period`
 - also defined in the service checks
 - defines when to alert

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with a focus on Nagios

Q & A

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Thank You!

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