

**EMT**

**Eric Bergen**

[eric@provencaling.com](mailto:eric@provencaling.com)

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**Scaling**   




# Functional Monitoring

- **Functional**
  - **Can I access the service?**
    - ◆ Nagios
    - ◆ Zabbix
    - ◆ Perl script that does a cURL and sends an email
  - **Typically centralized**
  - **Active and passive checks**
  - **5 minute interval**
  - **Tips**
    - ◆ Check something meaningful
    - ◆ Always have a plan for failure



# Performance Monitoring

- **Performance**
  - **Response time, response time, response time!**
    - ◆ Everything else exists to figure out why response time is bad
  - **Resource utilization**
    - ◆ Trending
    - ◆ Troubleshooting
  - **Efficiency**
    - ◆ Usage per request
    - ◆ Hardware comparisons
  - **Capacity**

# Story Time

- **The consulting phone call**
  - **Something bad happened last night**
- **HOLY \$#@&! THE WORLD IS ON FIRE**
  - **The system is down or super slow**
  - **One server is down or super slow**
- **A story of swapping**
  - **Around 5:00**
  - **Exactly 5:07**



# Existing Solutions

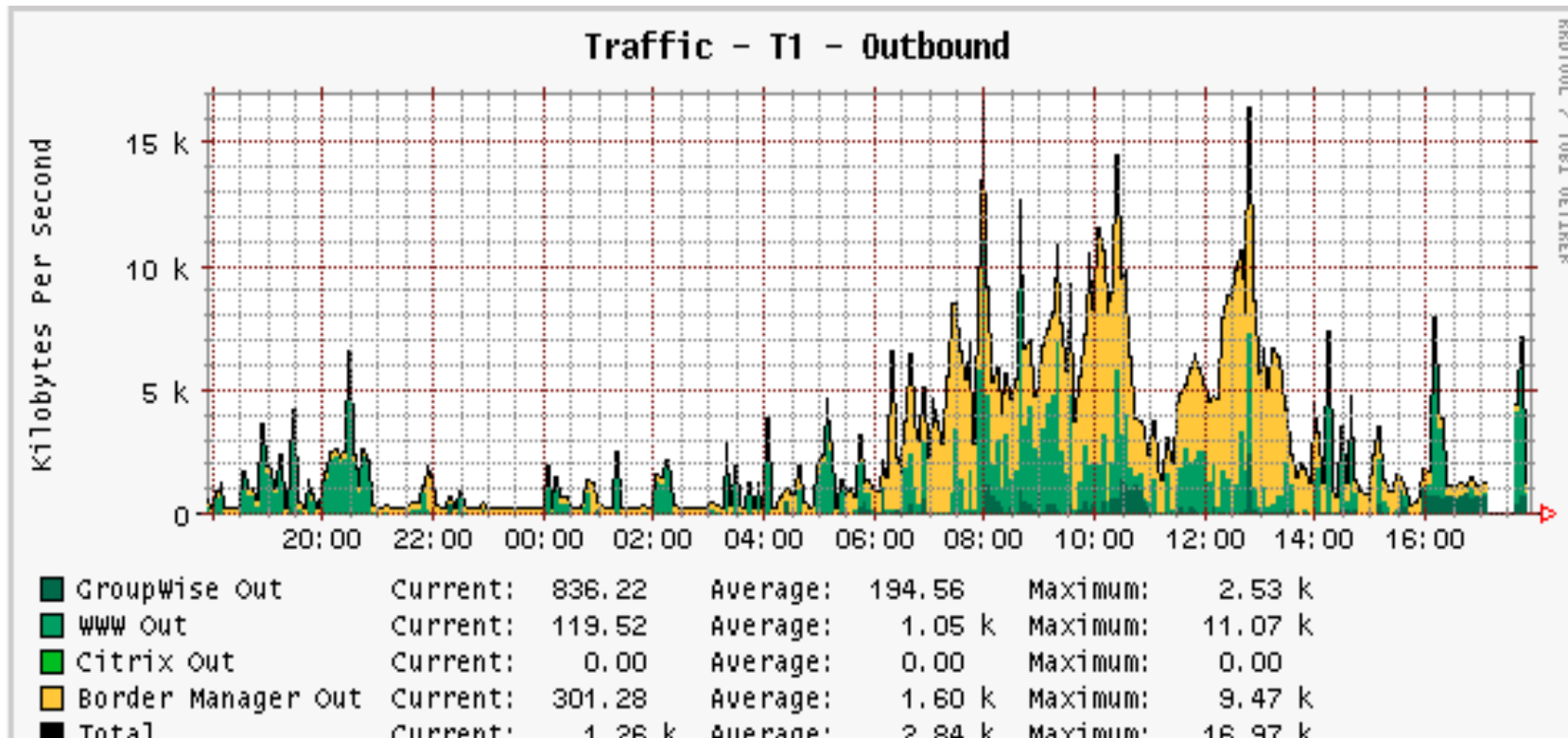
- **Graphs, lots of graphs.**
  - rrdtool
- **Command line tools with no stored history**
  - iostat, vmstat, top, innotop
- **Status pages**
  - Apache mod\_status
  - Tomcat JMX status
  - PHP APC status

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# Graphs

- **Pros**
  - Easy to see large changes
  - Easy to see trends over time
- **Cons**
  - Slow to access
  - Difficult to build ad hoc graphs
  - Difficult to get accurate numbers

# Graph Example



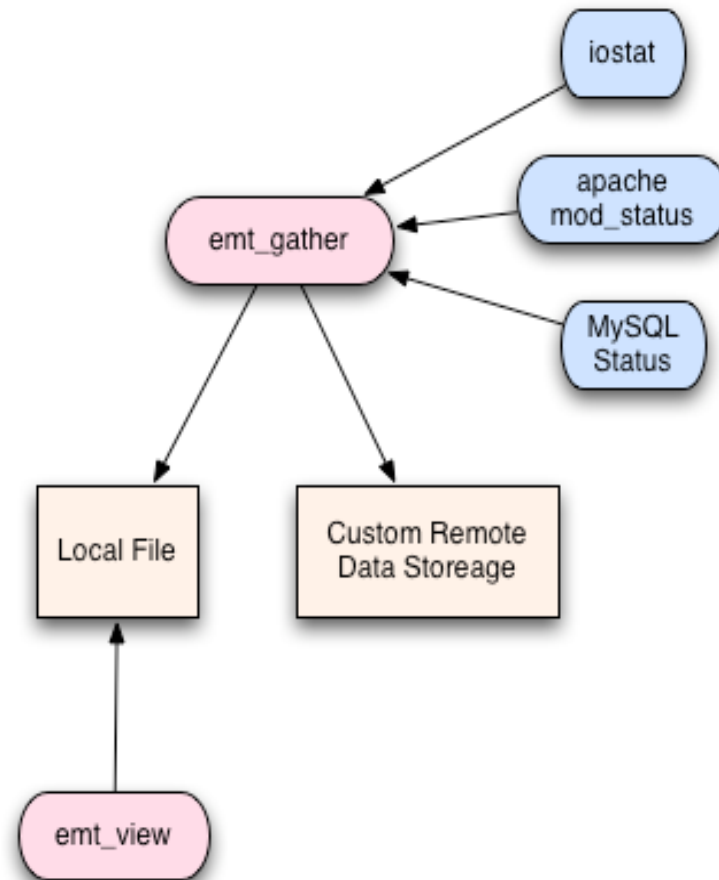
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# EMT

- **Collect data from existing scripts and status pages**
- **Store data locally**
  - **sqlite or csv file**
- **Send data to be archived**
- **Query data using a command line tool**
- **Access local storage directly**

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# Architecture





# EMT Data Model

- **Instances**
  - **Runs copies of plugins per named instance**
    - ◆ Apache ebergen.net
    - ◆ Apache jcole.us
- **Fields**
  - **Main object**
  - **Defined in configuration**
  - **Example**
    - ◆ MySQL queries
    - ◆ Apache requests
- **Sub Fields**
  - **Created on the fly by plugin**
    - ◆ Bytes sent per network adapter

# Accessing Data

- **emt\_view**
  - ◆ CLI command that can print formatted output
  - ◆ Supports named and anonymous views
    - Views are currently lists of instance:field.sub\_field
    - Future views will be able to do aggregation and expressions
  - ◆ Supports a default view
- **emt.txt file**
  - timestamp=2009-04-20  
13:46:01,duration=60,main:apache\_total\_accesses=31,send\_bytes.eth0=226613
- **sqlite**
  - **Table with the same text as csv and a timestamp index**
  - **Normalized tables**

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# emt\_view

```
eb
ssh bash ssh
ebergen@etna: (~) emt_view -n 10

[-----emt-----] [-----cpu-----] [disk-] [-memory-] [-----network-----]
Timestamp          Ustr%   Sys%   Busy%  Mem%   Recv Bytes  Send Bytes
                  sda
2009-04-19 21:29  1      0      0      37     19M        17M
2009-04-19 21:30  1      0      0      36     42K        293K
2009-04-19 21:31  1      0      0      37     19M        17M
2009-04-19 21:32  1      0      0      37     38K        123K
2009-04-19 21:33  1      0      0      38     28K        184K
2009-04-19 21:34  1      0      0      36     19M        17M
2009-04-19 21:35  1      0      0      36     19M        17M
2009-04-19 21:36  0      0      0      36     19M        17M
2009-04-19 21:37  0      0      0      36     20K        62K
2009-04-19 21:38  1      0      0      36     38M        34M
ebergen@etna: (~) █
```



# emt\_view -s mysql

```
ebergen@etna:~ — ssh — 222x54
ssh bash ssh
ebergen@etna:(~) emt_view -s mysql -n 10

[-----emt-----] [-----mysql-----]
Timestamp      Bytes In  Bytes Out  Com      Com      Com      Com      Com      Open Tables  Opened_tables  Conn  Run  Slow
                commit    delete    insert   select   update
2009-04-19 21:13  62K      755K      6        1        1        75      5        1588        0          1     1     0
2009-04-19 21:14  36K      521K      1        0        0        38     1        1588        0          1     1     0
2009-04-19 21:15  18K      167K      4        0        0        52     0        1588        0          1     1     0
2009-04-19 21:16  27K      1M       4        0        0        57     1        1588        0          1     1     0
2009-04-19 21:17  18K      802K     6        0        0        41     2        1588        0          1     1     0
2009-04-19 21:18  18K      507K     4        0        0        42     0        1588        0          1     1     0
2009-04-19 21:19  14K      753K     0        0        0        35     1        1588        0          1     1     0
2009-04-19 21:20  11K      338K     0        0        0        34     0        1588        0          1     1     0
2009-04-19 21:21  26K      899K     0        0        0        65     0        1588        0          1     1     0
2009-04-19 21:22  15K      1M       2        0        0        30     2        1588        0          1     1     0
ebergen@etna:(~) █
```

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# emt\_view -s apache

```
ebergen@etna:~ — ssh
ssh bash ssh
ebergen@etna:(~) emt_view -s apache -n 10

[-----emt-----] [-----apache-----]
Timestamp    Requests  Bytes    CPU    Busy Workers  Idle Workers
2009-04-19 21:25 32      85K     0      3             7
2009-04-19 21:26 28      52K     0      2             8
2009-04-19 21:27 23      57M     0      2             7
2009-04-19 21:28 30      65K     0      2             7
2009-04-19 21:29 27      51M     0      2             6
2009-04-19 21:30 27      108K    0      2             6
2009-04-19 21:31 32      59M     0      2             6
2009-04-19 21:32 21      38K     0      2             7
2009-04-19 21:33 22      106K    0      2             9
2009-04-19 21:34 26      79M     0      2             5
ebergen@etna:(~) █
```

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# emt\_view -f “too long for a heading”

```
ebergen@etna:~ -- ssh -- 222x
ssh bash ssh
ebergen@etna:(~) emt_view -f apache_total_bytes,apache_total_accesses,mysql_bytes_sent,mysql_com.select,send_bytes.eth0 -n 10

[-----emt-----] [-----apache-----] [-network-] [-----mysql-----]
Timestamp      Requests  Bytes      Send Bytes  Bytes Out  Com
eth0           select
2009-04-19 21:34 26         79M        17M        472K      51
2009-04-19 21:35 23         29K        17M        527K      41
2009-04-19 21:36 20         56M        17M        293K      25
2009-04-19 21:37 18         30K        62K        243K      23
2009-04-19 21:38 25         110M      34M        864K      24
2009-04-19 21:39 32         84K        321K      1M        37
2009-04-19 21:40 17         33K        103K      270K      23
2009-04-19 21:41 21         58M        17M        573K      61
2009-04-19 21:42 48         96M        31M        1M        46
2009-04-19 21:43 22         14M        19M        576K      39
ebergen@etna:(~) []
```

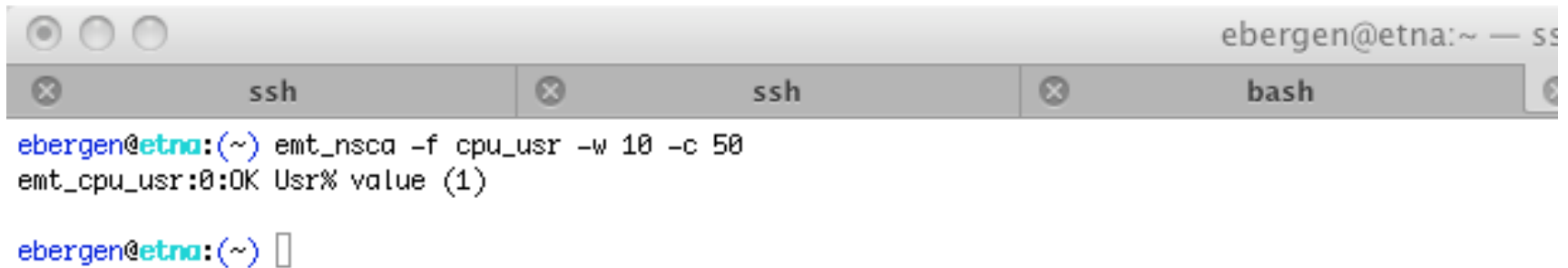
# End of Story

2009-04-21 16:59	19	10	6	48
2009-04-21 17:00	0	6	5	48
2009-04-21 17:01	0	4	4	48
2009-04-21 17:02	0	4	3	48

[-----ent-----]	[-----swap-----]		[disk-]	[-memory-]
Timestamp	Blocks In	Blocks Out	Busy%	Mem%
			sda	
2009-04-21 17:03	2	56	3	48
2009-04-21 17:04	8	59	6	48
2009-04-21 17:05	5	12	4	48
2009-04-21 17:06	2	14	4	48
2009-04-21 17:07	20	1357	14	49
2009-04-21 17:08	1520	5203	100	60
2009-04-21 17:09	1796	5673	100	69
2009-04-21 17:10	1980	4605	100	77
2009-04-21 17:11	1877	4150	100	81
2009-04-21 17:12	1829	3157	100	87
2009-04-21 17:13	2264	3821	100	91
2009-04-21 17:14	1489	2129	100	94
2009-04-21 17:15	1776	2746	100	96
2009-04-21 17:16	1910	1510	100	97
2009-04-21 17:17	1397	1484	100	98

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# emt\_nsca



```
ebergen@etna:~ — ssh
ssh ssh bash
ebergen@etna:(~) emt_nsca -f cpu_usr -w 10 -c 50
emt_cpu_usr:0:OK Ustr% value (1)
ebergen@etna:(~) █
```

# Plugins

- **Commands**
  - Usually execute a command
  - Timestamp just calls a php function
  - Can do as much work as they need to
    - ◆ Poll show status every 5 seconds for running queries
- **Fields**
  - Metrics parsed from the output of commands
  - Parsing should take care of sub\_fields
  - Instance will be tagged in the field by `emt_gather`

# Configuration

- **my.cnf style configuration**
  - **/etc/mt.cnf**
  - **Default view**
  - **Running instances**
- **Include directory**
  - **/etc/mt.d/\*cnf**
  - **Used to enable plugins**
  - **Pass configuration to mt\_\* commands and plugins**

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# Plans

- **emt\_view awk mode**
- **Views that can process data**
- **Plugins**
  - **Better plugin interface**
  - **emt\_gather internal plugins**
  - **Support methods for common parsing tasks**
- **Different installation methods**

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## Links

- <http://code.google.com/p/emt/>
- <http://groups.google.com/group/emt-dev>
- <http://provenscaling.com/software/emt/>
- <http://ebergen.net>

**Any questions?  
Discussion!**

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