

# Monitoring and Trending With MySQL

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AOL



# Presentation Overview

- Introduction
- Monitoring Overview
- Monitoring@AOL
- Challenges
- Resources
- An Announcement

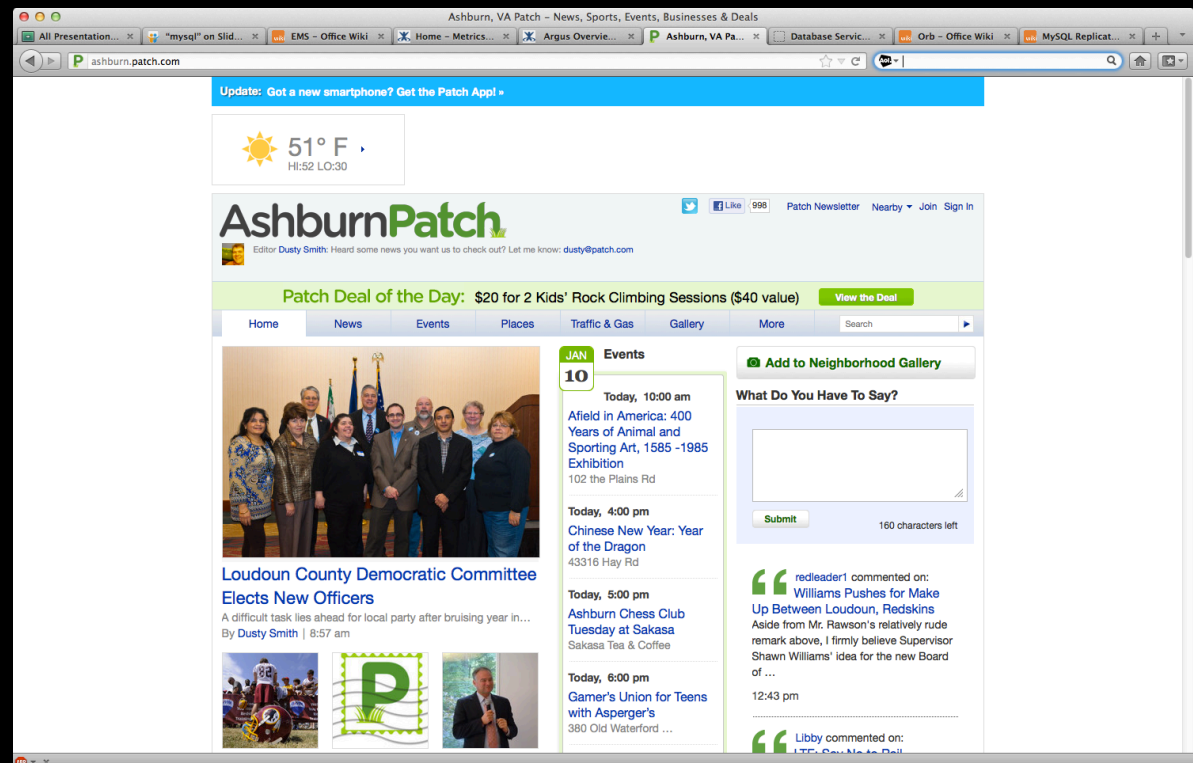
# About Me

- DBA at AOL (Dulles) for six years
- Original DBMS background is in Sybase
- Now MySQL, PostgreSQL, NoSQL (ex MongoDB)
- Currently lead DBA for Patch, MapQuest, HSS, Datalayer and Demand

# About Patch

- “Hyperlocal” news sites across the country
- Fills gap in coverage left by local newspapers
- 1000+ Sites
- Patch.com

Patch



The screenshot shows the Ashburn, VA Patch website. At the top, there's a navigation bar with links for Home, News, Events, Places, Traffic & Gas, Gallery, and More. A search bar is also present. Below the navigation, there's a featured article titled "Loudoun County Democratic Committee Elects New Officers" by Dusty Smith, dated 8:57 am. The article includes a photo of a group of people and a sub-headline: "A difficult task lies ahead for local party after bruising year in...". To the right of the article is an "Events" calendar for January 10th, listing several events: "Afield in America: 400 Years of Animal and Sporting Art, 1585-1985 Exhibition" at 10:00 am, "Chinese New Year: Year of the Dragon" at 4:00 pm, "Ashburn Chess Club Tuesday at Sakasa" at 5:00 pm, and "Gamer's Union for Teens with Asperger's" at 6:00 pm. There's also a "Patch Deal of the Day" banner for "\$20 for 2 Kids' Rock Climbing Sessions (\$40 value)".

# Operations Essentials

- Stay Up
    - High Availability
  - Stay Fast
    - Performance & Scale
  - Take Good Care of Data
    - Durability
  - Always Know What Is Going On
    - Monitoring & Alerting
- Thank you @t0dampier

# Monitoring Goals

- Know What To Monitor
- Know How You Can Monitor
- Learn To Diagnose Problems
  - Understand Normal Behavior
- Establish Foundation of Historical Information

# Monitoring Uses

- Fault-Detection/Alerting
- Analytics
- Trending
- Capacity Planning
  
- Business > (Systems, Networks, Applications)

# Monitoring MySQL at AOL

- AOL MySQL Webpage
- Argus
- Nagios

# ORB

- AOL Technologies' Configuration Management Database (CMDB)
- Integrated with many authoritative data repositories
- Unique namespace for many operations data points
- Data model for operations management
- Projects, Assets, People, Applications, Network Data, HCM
- SQL Interface

# MySQL Web Page

**MySQL Replication Topology**

**Server Details:**

- Server: [Redacted]
- Project: Local > Patch > Production > MySQL > Database
- Host: [Redacted]
- Port: 3306
- Version: 5.1.54
- Server Status: Active
- Support Team: Core Access Database Services
- Primary DBA: Michael DelNegro
- Backup DBA: [Redacted]
- Monitoring Enabled: Yes
- Atomics Enabled: No

**Master Host:** [Redacted]  
**Master Port:** 3306  
**Master LogFile:** binary-log.002143  
**Master Pos:** 1974

**MySQL Replication Topology Table:**

Host	Role	Conn %	Disk %	Latency
[Redacted]	(Bi-Master)	0	72	0
[Redacted]	(Bi-Repeater)	44	6	0
[Redacted]	(Slave)	6	3	0
[Redacted]	(Slave)	4	3	0
[Redacted]	(Slave)	6	3	0
[Redacted]	(Slave)	4	3	0
[Redacted]	(Slave)	4	3	0
[Redacted]	(Repeater)	1	16	0
[Redacted]	(Repeater)	2	17	0
[Redacted]	(Slave)	0	7	0
[Redacted]	(Repeater)	0	20	0
[Redacted]	(Slave)	3	3	0
[Redacted]	(Slave)	4	3	0
[Redacted]	(Slave)	3	3	0
[Redacted]	(Slave)	3	3	0

**Monitoring Legend:**

- Replication Running (Green square)
- Replication Latency (Yellow square)
- Replication Stopped (Red square)
- Unable to Connect (Blue square)
- Monitoring Disabled (Dark Blue square)
- Monitoring - OK Normal (Green circle)
- Monitoring - Warning Level (Yellow circle)
- Monitoring - Alert Level (Red circle)

**Database Information:**

- Databases: Mydbmgr.pl Backups
- information\_schema: Table List

**Connection Information:**

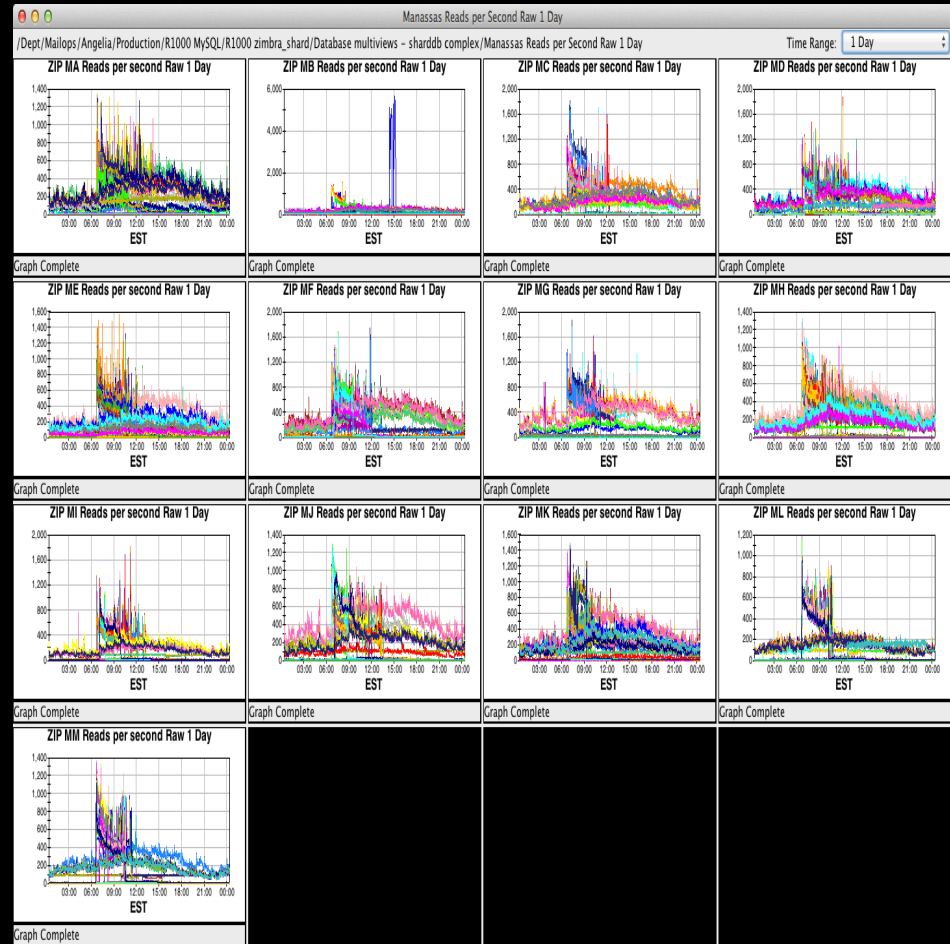
- Current
- Clients

# An Administration Console

- Replication Topology
- Netscaler Database VIPs
- Current Connections
- Current Configurations
- Project Information
- Disk %, Connection %, Rep Latency
  - Can set thresholds

# Argus

- Metric and Event
  - Collector
  - Thresholds
  - Management
  - Data Viewing



# Argus Subsystems

- Visualization
  - TOGA (Java web start metrics viewer)
  - Heimdall (HTML metrics viewer)
  - StateDB (last data sample collected datastore)
- Configuration UI
- Data Collection
  - Argusd agent,
  - Control Port, SNMP, HTTP, JMX, SQL collectors
- Availability (Scout, TCP port, ICMP)
- Event Management System (Netcool)

# Argus Stats

- 38.5 Million Metrics Collected a Minute
  - Grown 2x in past year
  - Grown 20X since 2006
- Tracking 1.6 million thresholds
  - 3500 alarms per minute
- One Minute Measurements
  - Keep Six Months
- Roll Up to Hourly and Daily Aggregates
  - Keep Forever (7 Years so far)

# Argus

- Great for Trending
- Great for Capacity Planning
- Great for Troubleshooting
- We Also Use for Host Metrics (CPU, I/O, etc)
- Administrated By a Small and very Busy Group
  - Requested Additions/Changes Can Be Slow

# Nagios

- Great For Fault-detection/Alerting
- Great For Show Me What Is Currently Broken
- Great For Service Availability Metrics
- Flexible
- Reduces Pressure On NOC
- Integrates With Netcool, Ignore Tool
- We Write Our Own Plug-Ins

# Monitoring MySQL

- Argus Currently Tracks 346 MySQL Metrics
- Nagios: Rep Latency, Rep Alert, Pinger, Connections
- Replication Heartbeat
- Slow Query Log Monitoring
- Host Metrics (CPU, I/O, Disk %)
- Threads\_running
  - Better performance indicator than CPU
- Determining Abnormal Data Retrieval versus Volume

# Challenges

- DBAs Need to Ensure They Are Taking Full Advantage of Tools Available to Them
  - More Internal Training and Evangelization
- Need To Be Mindful of Too Much Monitoring/ Alarms
- Alarms Need to be Actionable
- Test the Business
- Do More With Less (Even More Automation)
- Proactive > Reactive

# Monitoring Resources

- Patrick Debois' Blog
  - <http://www.jedi.be/blog/>
- Lindsay Holmwood's Monitoring Scaling Series
  - <http://holmwood.id.au/~lindsay/>
- PalominoDB Nagios Plugin for MySQL
  - <http://palominodb.com/about-us/projects>
- Percona Offerings Coming Soon

# Announcing the NOVA MySQL Meetup Group

- [www.meetup.com/NOVA-MySQL](http://www.meetup.com/NOVA-MySQL)
- DC/Balt area's only MySQL meetup group
- First meetup to be announced soon
- Follow @NOVA\_MySQL
- Informative and Informal
- Please join us!

# Thank You!

- [www.slideshare.net/radiocats](http://www.slideshare.net/radiocats)
- @radiocats
- [www.linkedin.com/in/mdelnegro](http://www.linkedin.com/in/mdelnegro)