Welcome Back Day 2
Matt Yonkovit
Percona
Percona Live: Lots of Learning and Fun!

- Learned tons about the current and future state of OSS databases
- Heard about all the cool stuff going on at Oracle MySQL
- Uncovered more about Hashi’s Cloud Operating Model
- Shared a great deal of content and learning over the last two days

We still have a bit more for you...
Thank You Sponsors!
The Future Looked Bright...

but are we there yet?
Self Realization:

I am getting old.
Life Used to be Much Simpler

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<thead>
<tr>
<th>Proprietary</th>
<th>Open Source</th>
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<td>Oracle</td>
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The Future was Full of Promise...
With Lots of New Technology...

- Fully managed cloud
- Automation
- AI and machine learning
- DBaaS
- Better databases
- Outages
- Slowdowns
- Security issues
- Deep technical knowledge
- DBAs
It Was All Supposed to be So Easy!
Are We in the Future Yet?
Zero Outages? Not So Much!

Biggest Facebook Outage in its History ‘Due to Database Issues’

LinkedIn down and not working for many

Briefing: Alibaba Cloud outage hits North China

Faulty database script brings Salesforce to its knees

Reddit is back online after a two-hour outage. Here’s what happened

Facebook goes DOWN – UK users unable to access the site for hours

MYOB sees flow-on effect from AWS Sydney database outage

WSJ: Facebook blamed for millions of security vulnerabilities

AWS ‘power event’ disrupts largest U.S. availability zone

Facebook down after massive outage

Microsoft Cloud Services Stumble After Outage Hits Texas Datacenter

On Thursday, a power issue at an AWS data center in Northern Virginia disrupted services throughout the US East region, the largest in the United States.

News

BY Mathew Katz
September 18, 2019 9:30PM PST
Security No Longer a Concern? Not Really!

Gootkit malware crew left their database exposed online without a password

Even cyber-criminal gangs can't secure their MongoDB servers properly.

By Catalin Cimpanu for ZDNet | September 17, 2019 -- 13:00 GMT (06:00 PDT) | Topic: Security

Yet Another Data Leak In Indian Government Database, Exposes Multiple Citizen IDs

Database leaks data on most of Ecuador’s citizens, including 6.7 million children

Elasticsearch server leaks personal data on Ecuador’s citizens, their family trees, and children, but also some users’ financial records and car registration information.

Bought A Car Recently? 198 Million Car Buyer Records Exposed In Massive Data Leak

Unprotected Database Exposes Millions of Facebook users’ Contact Numbers

French travel site Option Way leaks 100GB worth of customer details

MoviePass confirms breach that leaked credit card numbers

Lumin PDF Leak Exposed Data on 24 Million Users

Capital One Hacker ‘Breached 30 Organizations And Mined Cryptocurrency,’ Claims DOJ

Governance, Incident & Breach Response, Privacy

Data on Users of PDF Editing Tool Found In Accessible Database

Jeremy Kirk @Jeremy_kirk | September 18, 2019

18,369 views | Aug 29, 2019, 08:45am

118,272 views | Sep 15, 2019, 03:44am

33,972 views | Sep 15, 2019, 03:44am

32,955 views | Sep 17, 2019, 03:38am
Easier to Get Started? Even More Confusing!
What Happened to the Future?
The future brought lots of new tools, but not solutions. You still have to know how to use the tools.
Undertrained, underqualified people with access to powerful technology.

With great power comes great responsibility.
Who do you trust?
The In-Laws

Meet Ernie and Terry
Who do you trust with your data and with technology?
Apathy and Blind Trust

The destroyer of systems and breacher of security.
Shared Responsibility?
What is the Impact?

The vast majority of database breaches are caused by misconfigured or misunderstood technology

● 1a/1b technology: MongoDB & Elasticsearch

● Misuse of public cloud provider technology

People don’t understand the “Shared Responsibility Model”

● Security
● Performance
● Optimization
● Architecture

Data is left open, unsecure, or untuned
Are they in a prison of their own design?

What is “Fully Managed?”
Expectations are only getting higher!
What Happens When Expectations Aren’t Met?

Netflix, Snapchat, or Facebook go down
Imagine the Impact to Millions of Users...

- Hospitals
- Banks
- Government
- Manufacturing
- Emergency Services

... or Twitter!
What are the expectations

In 2014 Akanami said 49% of people wait 2 seconds or less.

Amazon once estimated that every additional second of load time costs them 1.6B a year.

A 2016 study by google estimated you lose 53% of your mobile traffic if you don’t respond within 3 seconds.

According to a 2017 study by Kissmetrics: 40% of people will abandon a website if it takes more then 3 seconds.

A 2019 study by Quantum Metric says 36% of users will find alternatives if a website is slow.
Missing Expectations

- 44% report having slowdowns related to their database in production
- 20% had unplanned database downtime
- 14% said they rolled bad code into production
How Users Respond to Outages

- People have zero tolerance for an outage
- People can’t wait for data to become available. They need it now or they WILL find an alternative.
- A company’s reputation matters, and these small things can have a huge impact on how their brand is perceived
What Does This Mean for You?

● People will blame you for missed expectations
  ○ Databases often are overlooked by the application development teams, yet they are critical to performance

● Scale by pay is becoming more common.
  ○ Yet, there is little to no understanding that paying more doesn’t protect you from issues

● Issues aren’t going anywhere
  ○ We are just kicking the can down the road

● Everyone is overloaded
  ○ We are all looking for ways to reduce workload, and automation seems like an easy answer… but is it?
Automation: A multiplier of both good and bad.
Does Automation Help or Hurt?

- Many major outages are caused by automation - the automation of something bad
- What could have been a relatively small outage, turns into a half or full day outage once the bad things are replicated
- Workload is actually increased. Instead of fixing one server, you have to fix 1000’s of them!
- Deadlines still have to be met. The speed needed to deploy can lead to cutting corners in testing, creating more issues.
We strived for simplification and ease of use, but we missed the mark.
How do we make this complex ecosystem easier to use while still celebrating the powerful differences of each provider and tool?
Focus on These Key Areas

● Shared responsibility
  ○ Database vendors and cloud providers offer you many tools, but you have to learn how to use them properly

● No blind trust
  ○ Educate yourself and clearly understand each technology’s power and limitations before implementing them

● Mitigate risk
  ○ Nothing is bulletproof. Have redundancies in place. Plan for a bad day.

● Understand your users
  ○ Get to know your user’s expectations and then design your systems to meet them and fulfill their needs

● Use automation wisely
  ○ Remember that you can automate both good and bad things. Always test, verify, and then adjust your automation accordingly.
Applications are living breathing entities that evolve and change. You need to evolve and change with them.