



Distributed Call Queues with Kamailio and Asterisk

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About me

- **Location:** Israel
- **Passion:** Open Source in General
- **Super Hero Powers:**
Asterisk, AGI, AMI, PHP, JAVA, Linux,
Network Security and VoIP Security

Great things happened in 2006...



You decide !

And my personal EPIC Failure !



BioCluster

An attempt at building an Asterisk
Cluster environment.



Why did I fail? Simple!

No one really needed it!

Fast Forward to 2014



Call Centers & ISVs- 2014

- Thinking Globally
- Thinking Cloud
- Thinking Geo-independence
- Thinking ...

We need something new!



YES
We can

- Cloud based
- Auto Scaled
- Standards Compliant
- Secured & Encrypted

We Want!

- Economical
- Battle Tested
- Future Proofed



Tools of the trade

- Kamailio – Registrar and NAT Helper
- Asterisk – Media Server and Application
- REDIS – Interim Queue Management
- Beanstalkd – DWH Job Queue
- MySQL – Billing and CRM/ERP

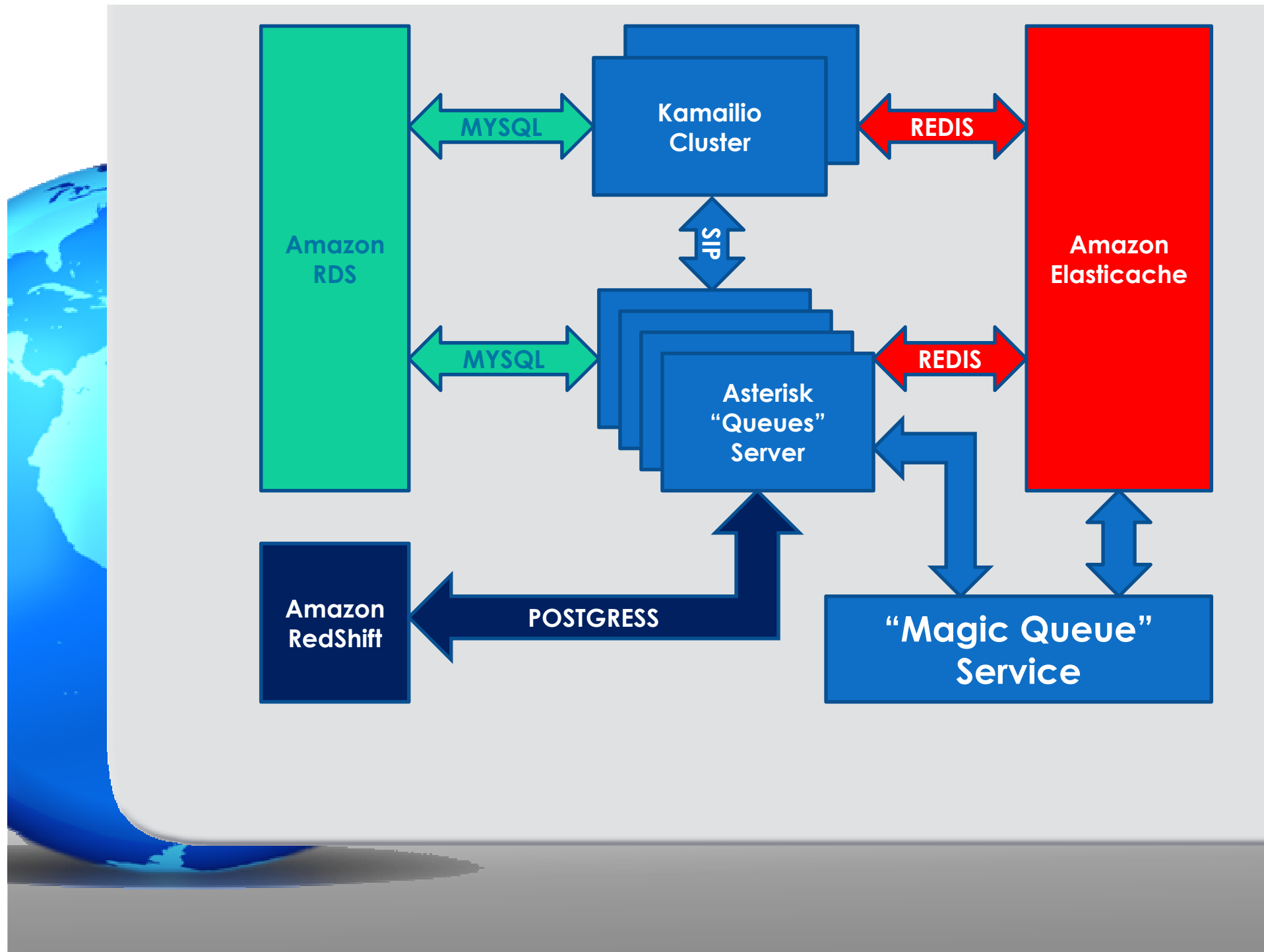


Selected Infrastructure

- Amazon EC2 – Kamailio & Asterisk
- Amazon RDS – MySQL Instance
- Amazon RedShift – DWH
- Amazon ElastiCache – REDIS



The blueprint





The fine print

The “Magic Queue Service”





Queuing without queuing

- Magic Queue service maintains a virtual queue – stored in REDIS
- The Queue is actually an ordered list of Asterisk channels
- When the time of the call to be processed arrives – MQS will instruct Asterisk to originate a call back to Kamailio



Stress Testing

- Using SIPp we've simulated over 2,000 connected agents
- Using SIPp we've simulated a total of 3,600 concurrent inbound calls (8xAsterisk + 1xKamailio)
- Test ran for 10 hours
- 0 calls were dropped due to SIP issues
- 0 calls were dropped due to server issues



How was the test done

- 3,600 calls were originated by SIPp and inserted into the distributed queue
- Calls were left in the queue for 1 minute
- After 1 minute, agents started logging in via SIPp and accepting calls
- We stopped at 2,000 agents
- Each call lasted 5 minute
- And it kept on going – with 1,600 queued



What we didn't do yet

- Queue over flowing
- Inner queue IVR
- Priority based queuing
- Queue break outs
- Lawful interception – very complicated



Questions and Contact information

- You may contact me with questions using:
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 - Or just ask me for my IM contact