

# War Stories from Building a Public Cloud

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API Cloud



App Cloud



SLA & Support



About WSO2



## o History

- o StratosLive
- o Stratos -> Donated to Apache
- o Wanted to provide a better user experience
- o WSO2 API Manager was becoming a hot product
- o WSO2 AppFactory was in the making

- o Two clouds
  - o App Cloud
    - Powered by WSO2 AppFactory
  - o API Cloud
    - Powered by WSO2 API Manager
- o In beta for nearly two years
- o API Cloud is commercial now



# *War Stories*

# Why it is a war :)

- o It is not a war, but
  - o More than 100 instances
  - o Can't let a bug to live too long
  - o Need to upgrade frequently
  - o Customer issues/questions
  - o We depend on other WSO2 products, but...

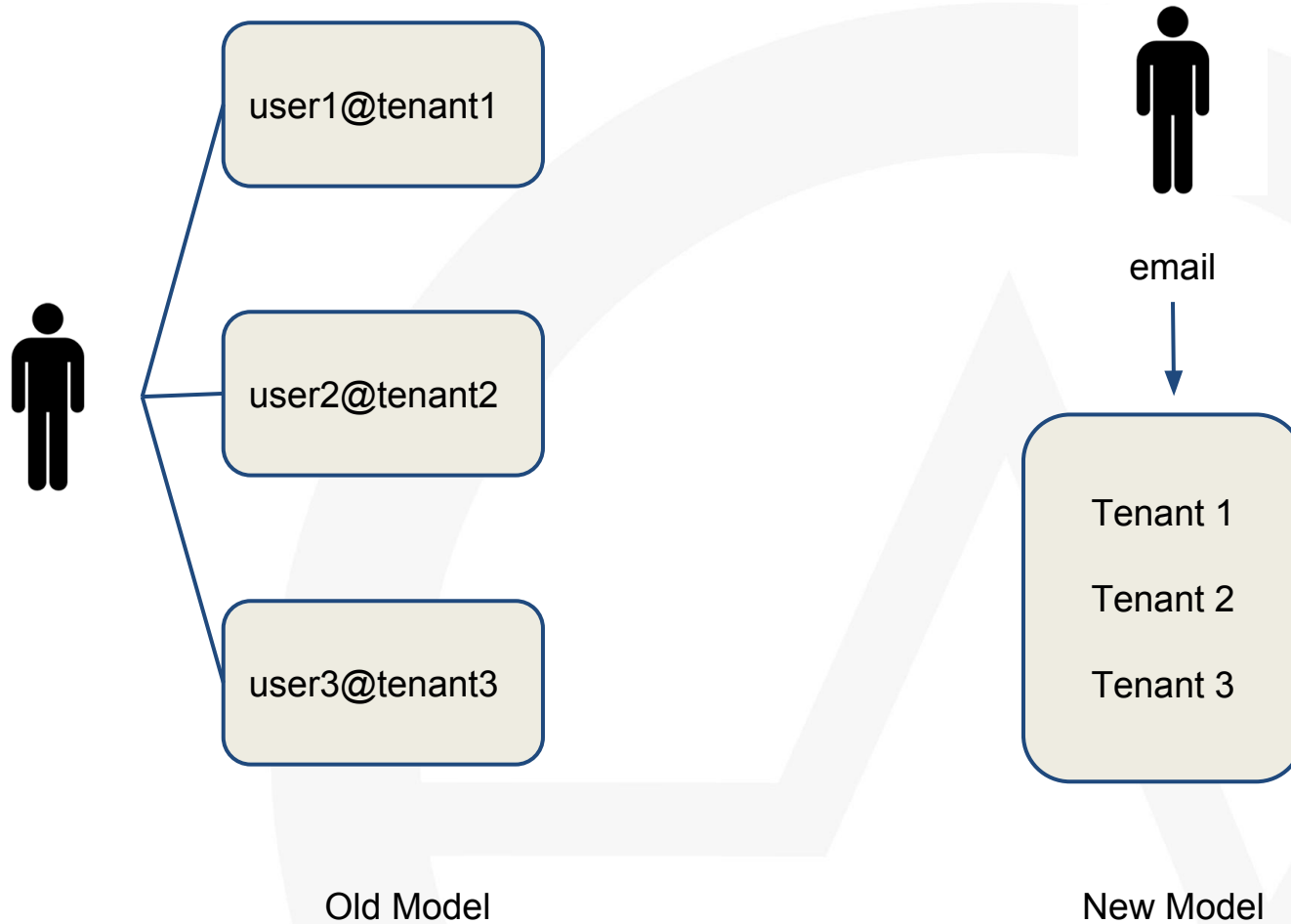
# Will be sharing the experience on..

- Customizations and new developments
- Planning the deployment
- Configuration management
- Monitoring and alerts
- Bug fixes, upgrades and migrations
- Security
- Backups and restoration
- Statistics
- Feedback and customer support
- Performance issue
- Processes



- o New user model
  - o Requirement of plugging the wso2.com userstore
  - o Ease of registering and working in organizations
  - o Wrote our own userstore implementation
- o Management app
  - o Two clouds (and more in the future) to be centrally managed

# Customizations and new developments



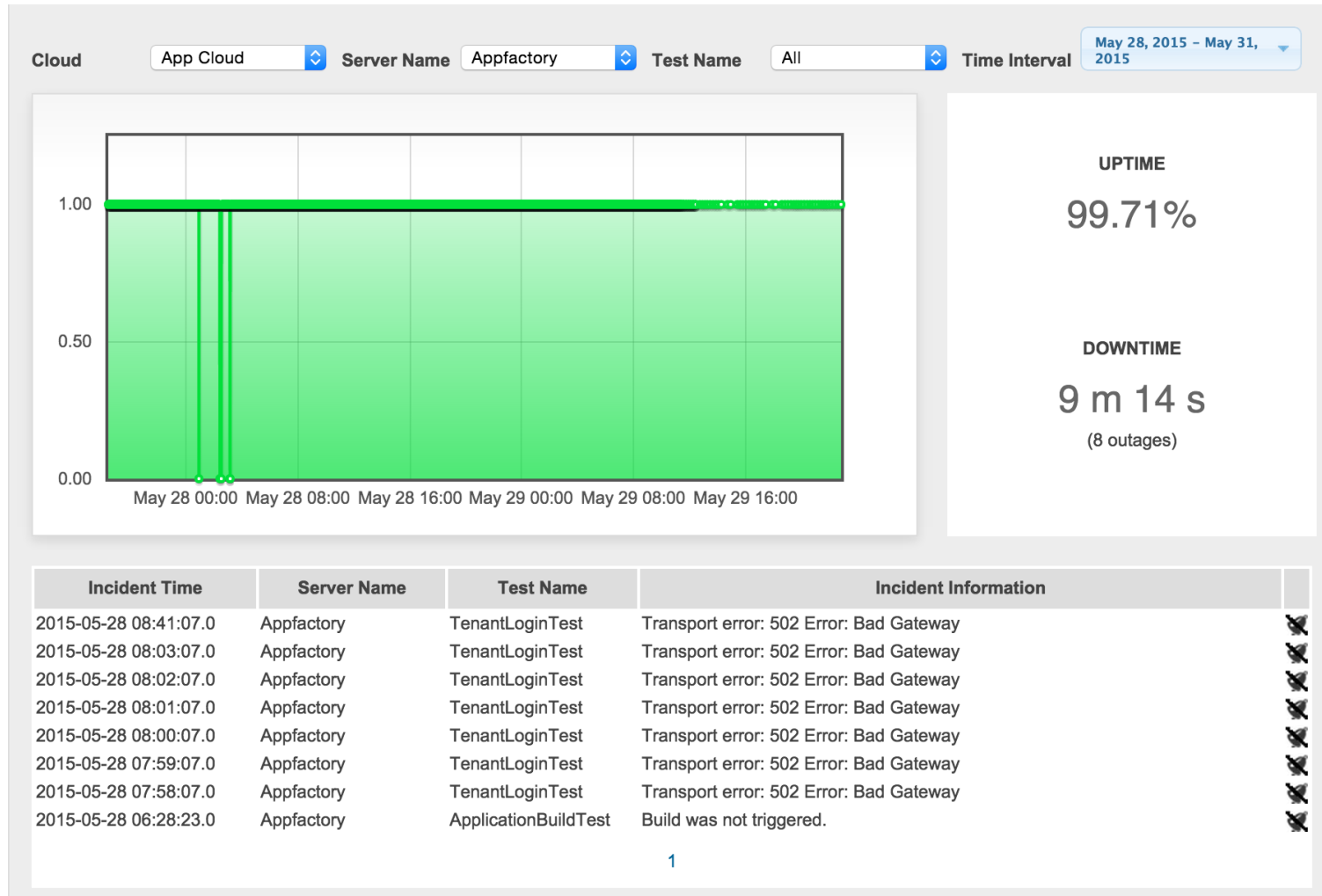
- AWS as the IaaS
  - Previous experience in running a cloud in our infrastructure
  - We are not specialized in maintaining data centers
  - So, why waste our time
- EC2, VPC, RDS, S3
- High availability

- We had experienced our own solution previously
- We were also playing with Puppet
- Some facts to consider
  - AWS instances are shutdown for maintenance
  - Necessity of scaling
  - Setting up multiple environments
- Decided to go with puppet
- We manage more than 100 nodes now



- Three types of monitoring were needed
  - Health of the instances and JVM processes
    - SNMP, Nagios
    - Emails, Phone alerts etc.
  - Functionality health
    - Our own heartbeat monitoring tool
    - Improved to track the uptime as well
    - Keeps adding more tests
  - Logs
    - To smell trouble
    - Logstash and Kibana from <https://www.elastic.co/>

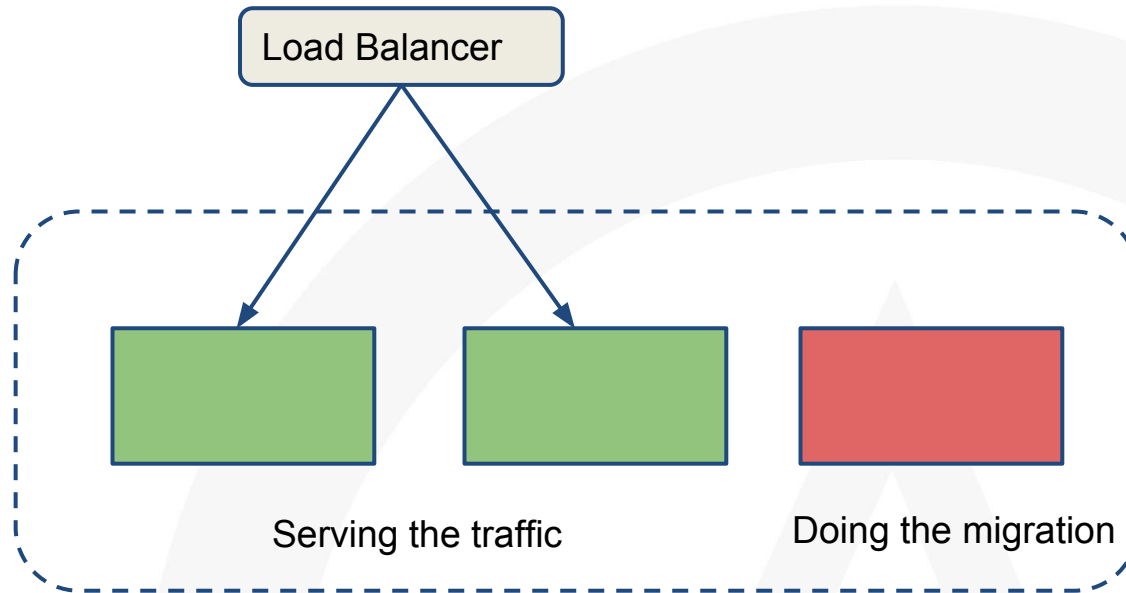
# Monitoring & Alerting



# Bug fixes, Upgrades & Migration

- o Bug fixing
  - o We can't let a bug to exist in the live system
  - o We are a customer of WSO2 :-)
  - o Get patches from WSO2 Support
- o Upgrades & Migrations
  - o Deploy AppFactory milestones every 2 or 3 weeks
  - o Some ends up needing migrations
  - o Have our own ways
- o Target
  - o Continuous deployment

# Bug fixes, Upgrades & Migration





- Access to infrastructure
- Public/Private access for services
  - Which service/product should be exposed publicly/privately
- Securing users' data
  - Native multi-tenancy support
  - Java security manager enabled
    - Very strict at the moment

# Backups & Restoration

- Any user artifact is in Git or SVN
- Snapshots taken
  - RDS
  - EBS
  - Automated via AWS facilities
- LDAP backups

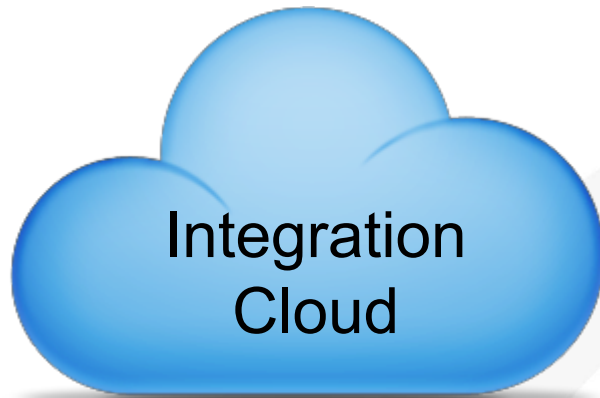
- We need to know what is happening
  - How many users are using this daily
  - How far they go
  - Understand about our UX
- Publish stats to WSO2 BAM on various user activities
  - Run analytic scripts
- Uptime tracking
- Also refer logstash stats

- There was no way for the users to contact us
- Provided few methods
  - Contact us menu at the top
    - Via StackOverflow
    - Via email - which will automatically create a jira
- Improved our customer service
  - Monitor the dashboard
  - Keep the user informed regularly

- Identified and fixed several performance issues
- Changed some architectures as well
- Several issues
  - Registry related issues
  - File system related issues
- Had problems when the number of tenants were growing
  - Now we have cleanup mechanisms in place

- If same mistake happens more than once, its negligence.
  - But, people do make mistakes
- Processes are the best way to minimize them
  - Applying patches
  - Making a config change
  - Monitoring logs for errors
  - Supporting users
- Checklists
  - In upgrades

# Future Wars...



# Keep in touch

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- o Twitter
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