Cyclops

The ultimate billing framework for cloud services

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ICCLab - Who we are?

InIT Cloud Computing Lab (ICCLab)
Cloud Services Today

- Volume based service
- Undifferentiated services like compute, storage & network
- Prices & SLAs are similar to each other
Value addition propositions

- Common basic service, differentiated VAS
- Ability to respond quickly to changing business requirements
- Similar approach for Rating, Charging & Billing (RCB) towards resellers, distributors, customer
What is RCB?

- R = Rating
- C = Charging
- B = Billing
RCB: How things are done today?

- Semi automated process, rigid in nature
- Changes in portfolio requires changes in RCB component
- Many still do this process manually
RCB: How things should be done!

RCB should be

• Generic
• Support changes to service portfolio
• Modular and not monolithic
Cyclops: USP

A billing framework for clouds designed from grounds up

- Architecture - Micro Services
- External applications - Plug n Play
- Dynamic rates for cloud resources
- Orchestration ready (RCBaaS)
- Native support for OpenStack
Cyclops: RCBaaS

- One step installation & configuration
- Powered by OpenStack Heat
- Standalone installation scripts for microservices
Cyclops: Architecture
Cyclops: UDR mService

- Creation of Usage Data Records
- Interfaces with IaaS (OpenStack, CloudStack, etc)
- Gateway for external applications (PaaS/SaaS)
- API for data visualization & analytics, usage reports
Cyclops: UDR mService
Cyclops: UDR mService

Usage Data Record

- Time
- Resource meta
- User meta
- Usage
- Unit
Cyclops: RC mService

- Generation of Charge Data Records (CDR)
- Rating policy configuration (Dynamic/Static rating policy)
- Interfaces with the rate engine
- API for User’s Charge & resource’s rate report
Cyclops: RC mService
Cyclops: RC mService

Charge Data Records

- Time
- Resource name
- User Id
- Usage
- Price
Cyclops: Billing mService

- Conversion of charge records into periodic bills
- Factors in discounts, promotions, etc..
- Integration with external SLA module
  - Support for Penalties
Cyclops: Billing mService
Cyclops: Dashboard

- Unified web based interface
- Differentiated views for administrators & end-users
- Uses APIs from RCB micro services
- Integrated with OpenAM OpenID Connect
Cyclops: Dashboard

- User/Admin dashboard
- Usage Visualization, Resource Configuration
- Rating policy, rate & charge visualization
- Bill status, tax and discount management
- Invoice generation

Dashboard

Login

OpenAM
UDR mService
RC mService
Billing mService
Support Service
Cyclops: USE CASES (MCN)

Consolidated billing for applications served out of cloud!
• Billing based on application specific metrics + usual cloud meters.

DSSaaS: Digital Signage System
Billing based on: #Number of Active Screens.
• Content served and hosted out of OpenStack clouds
• Cyclops UDR allows external usage data to be sent in, rated and billed upon.
Cyclops: USE CASES (TNova)

- Multiple stakeholder support
  - Revenue sharing between SP & NF-Provider

- Support for pay-as-you-go and subscription billing models
  - Subscription windows (begin/end) handled as events
  - UDR translates those events into time-based usage reports.
Base meters -> product bundles
- Rules attached to the bundles are stored in the rule engine
- Using bundles/products to offer different billing models such as Pay as you go (Usage based, Time based), Subscription
- Aimed at B2C scenarios
Cyclops: USE CASES (Product Catalog)

Product-A

Meter-1: rating rule a
Meter-2: rating rule b

Product-B

Meter-3: rating rule c
Meter-4: rating rule d
Cyclops: USE CASES (Product Catalog)
Cyclops: Short Demo
Upcoming Features

• Security - Full integration with OpenAM
• Intelligent caching
• Auditability: WORM
• Resource consumption forecasting
General Availability

CYCLOPS v1.0 Release – June 14\textsuperscript{th} 2015

Apache Licence v2

\url{http://icclab.github.io/cyclops}

https://github.com/icclab/cyclops-udr  
https://github.com/icclab/cyclops-billing

https://github.com/icclab/cyclops-rc  
https://github.com/icclab/cyclops-support
Questions?

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CYCLOPS is partly supported by
Backup Slides
Cyclops: USP

1.Subscription based billing
2. Resource Usage based billing
3. Visualization: Usage metrics, charge and resource rate
4. Invoice generation