



Use Case of OpenStack 50000 VM in Yahoo! JAPAN

2015/8/17

Yahoo! JAPAN

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1. About Yahoo! JAPAN
2. Operation statistics of OpenStack
3. Practical uses and operations of OpenStack
4. Why we use OpenStack?



Introduction of the statistic data

ホームに設定する

Yahoo! BB
きっぷ版

トラベル

ヤフオク!

ショッピング

YAHOO!
JAPAN

My
My Yahoo!

ボックス

メール

カテゴリー一覧
サイトの登録
無料ID活用

ウェブ 画像 動画 辞書 知恵袋 地図 リアルタイム 一覧

検索

各地で猛烈な暑さ、熱中症に十分な警戒を ▶ 【甲子園速報】敦賀気比vs明德義塾ほか ▶ 1巻無料の野球コミックが大集合

主なサービス

- ショッピング
- ヤフオク!
- LOHACO
- 旅行、ホテル予約
- ニュース
- 天気
- スポーツ
- ファイナンス
- テレビ
- GYAO!
- ゲーム
- Y!モバイル
- 地図
- 路線
- 食べログ
- 求人、アルバイト
- 不動産

ニュース

12時37分更新

- 平野氏一転不出馬 衝撃と批判
- 日航機墜落 帰らぬ娘3人待つ
- 高架下遺体 当時17歳2人逮捕
- JR北陸線特急が2人はねる
- 交際女性にたばこ煮汁飲ます
- 清宮 打たないと示しつかない
- 世界水泳 最年少10歳が出場
- 泉谷 提訴受けてギター投げず

幻の豪華列車が出発
8月8日11時21分配信
時事通信

もっと見る 記事一覧

今“コレ”が欲しい

リゾートでオシャレにきめる

せっかくのバカンスなんだから、ファッションも楽しまなくちゃもったいない。ステキな着こなしや小物など、ぜひ参考にしてみて。

10周年
トロフィーは
君のモノ!?

10周年
記念ページ
も公開!

Yahoo! JAPAN インターネットクリエイティブアワード 2015
応募期間 2015.7.17(金) → 8.24(月)

ログイン

IDでもっと便利に[新規取得]

ログイン履歴 登録情報

メール - メールアドレスを取得

2015年8月8日(土)

今日の天気 (名古屋)
20% 36°C / 26°C

明日の天気 (名古屋)
20% 34°C / 26°C



Introduction of the statistic data

The image shows a screenshot of the Yahoo! JAPAN homepage. Overlaid on the center of the page is large red text that reads "Monthly Page View 64.99 Billion".

The homepage layout includes:

- Top navigation bar with links like "ホームページに設定する" and "ヘルプ".
- Second row with icons for "Yahoo! BB きっず版", "トラベル", "ヤフオク!", "ショッピング", "YAHOO! JAPAN", "My Yahoo!", "ボックス", "メール", and "カテゴリ一覧 サイトの登録 無料ID活用".
- Third row with a search bar and a "検索" button.
- Fourth row with a news ticker: "各地で猛烈な暑さ、熱中症に十分な警戒を" "【甲子園速報】敦賀気比vs明德義塾ほか" "1巻無料の野球コミックが大集合".
- Left sidebar with "主なサービス" (Main Services) including Shopping, Auctions, LOHACO, Travel, News, Weather, Sports, Finance, TV, GYAOL, Games, Mobile, Maps, Routes, Food Blogs, Job/Part-time, and Real Estate.
- Main content area with tabs for "ニュース" (News), "経済" (Economy), "エンタメ" (Entertainment), "スポーツ" (Sports), and "その他" (Others). The "ニュース" tab is active, showing a list of news items.
- Right sidebar with a "10周年" (10th Anniversary) banner, a contest announcement "Yahoo! JAPAN インターネットクリエイティブアワード 2015" (2015.7.17 - 8.24), and a "メール" (Email) section.



Introduction of the statistic data

The screenshot shows the Yahoo! JAPAN homepage with a navigation bar at the top containing links to home, BB, travel, shopping, and other services. The main content area features a search bar, a news section with headlines, and a sidebar with various service links. A large red text overlay is present in the center of the page.

Monthly Page View (Only Smartphone)

31.9 Billion



Apps Total Download

270 Million



YAHOO!
JAPAN

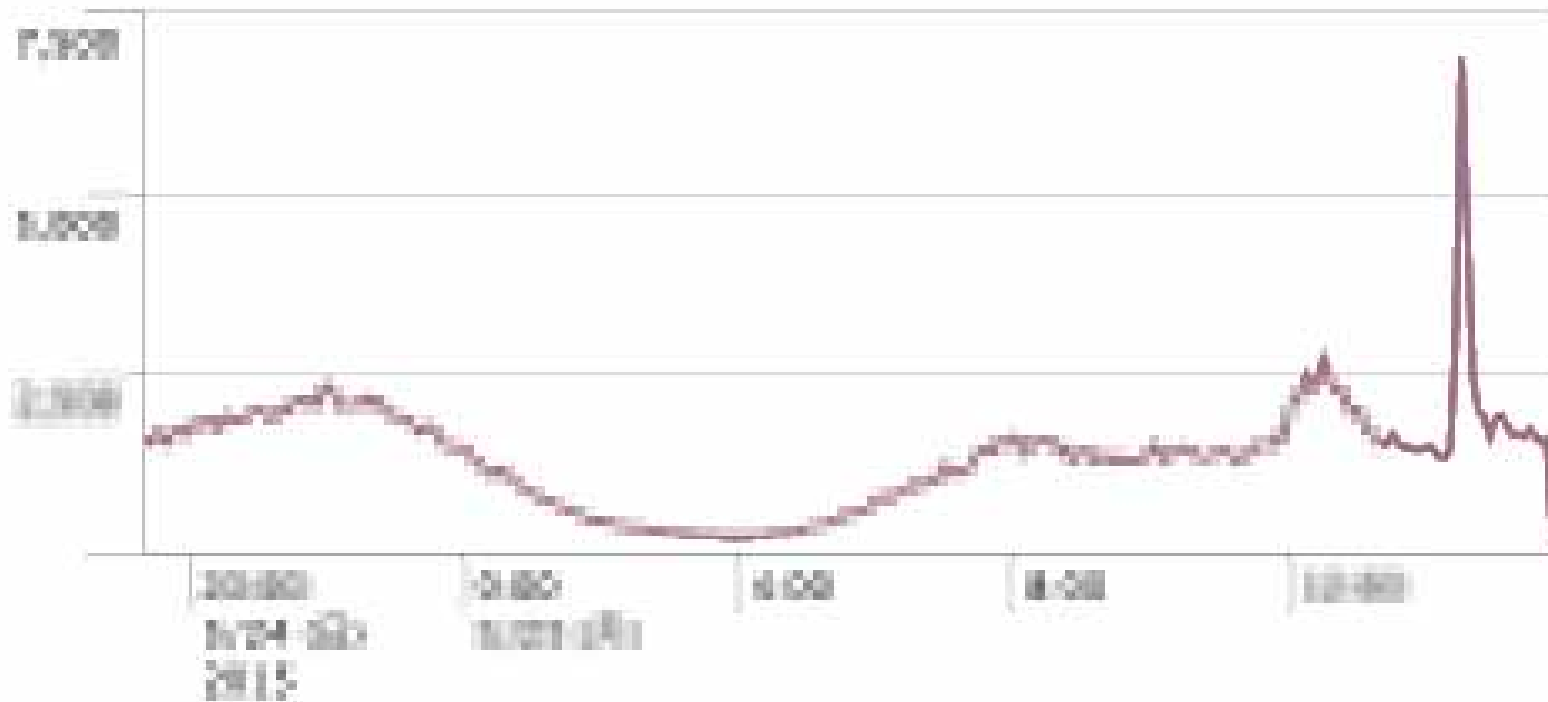
Number of services

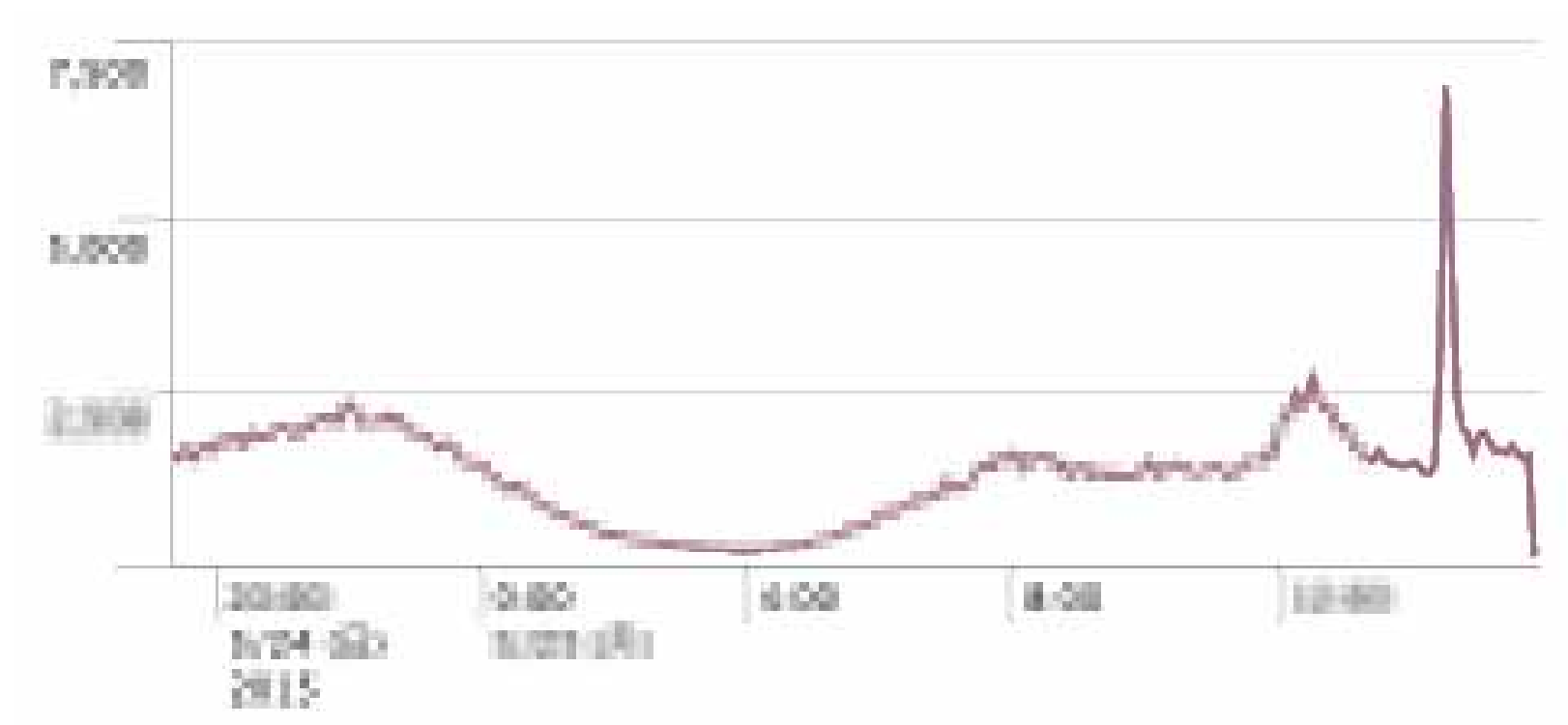
100+



What is this graph?

P8

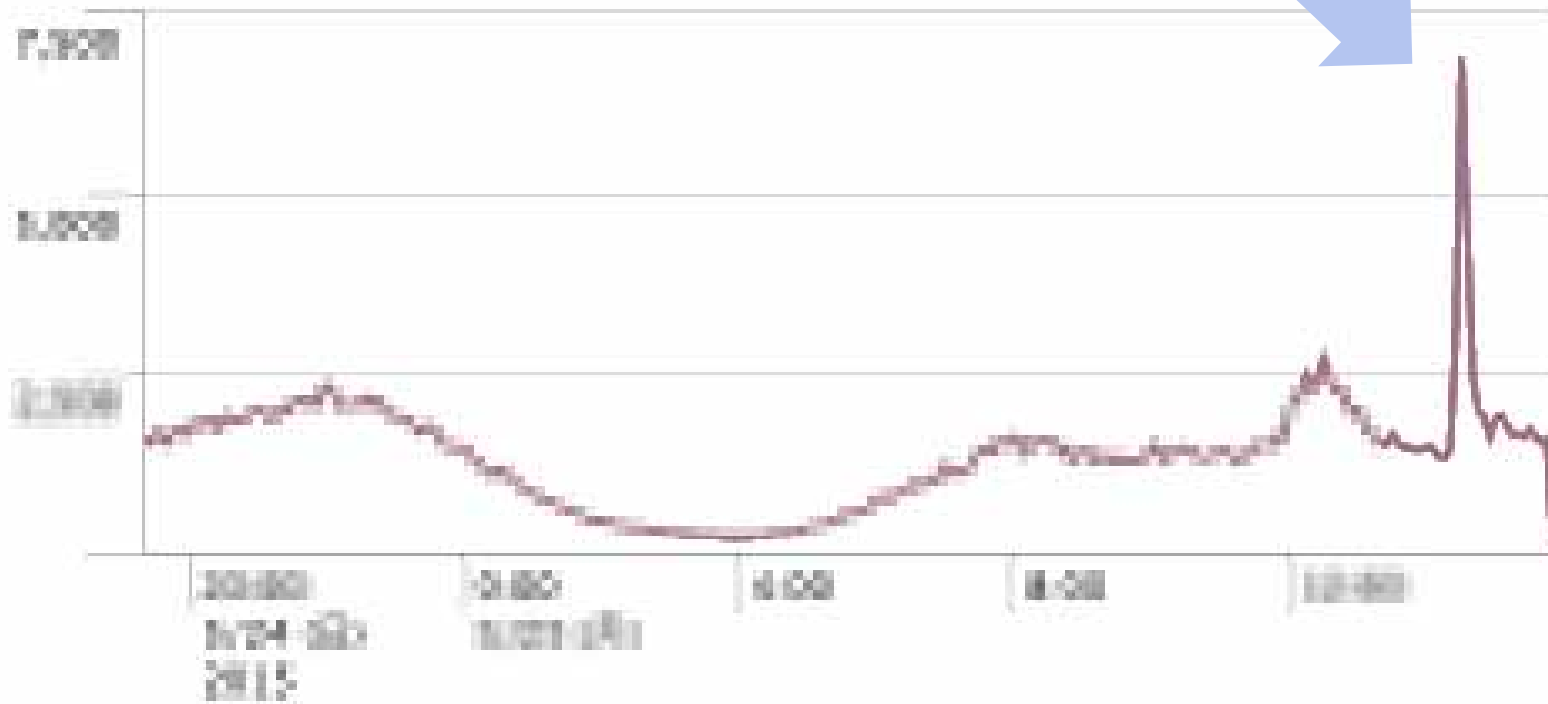






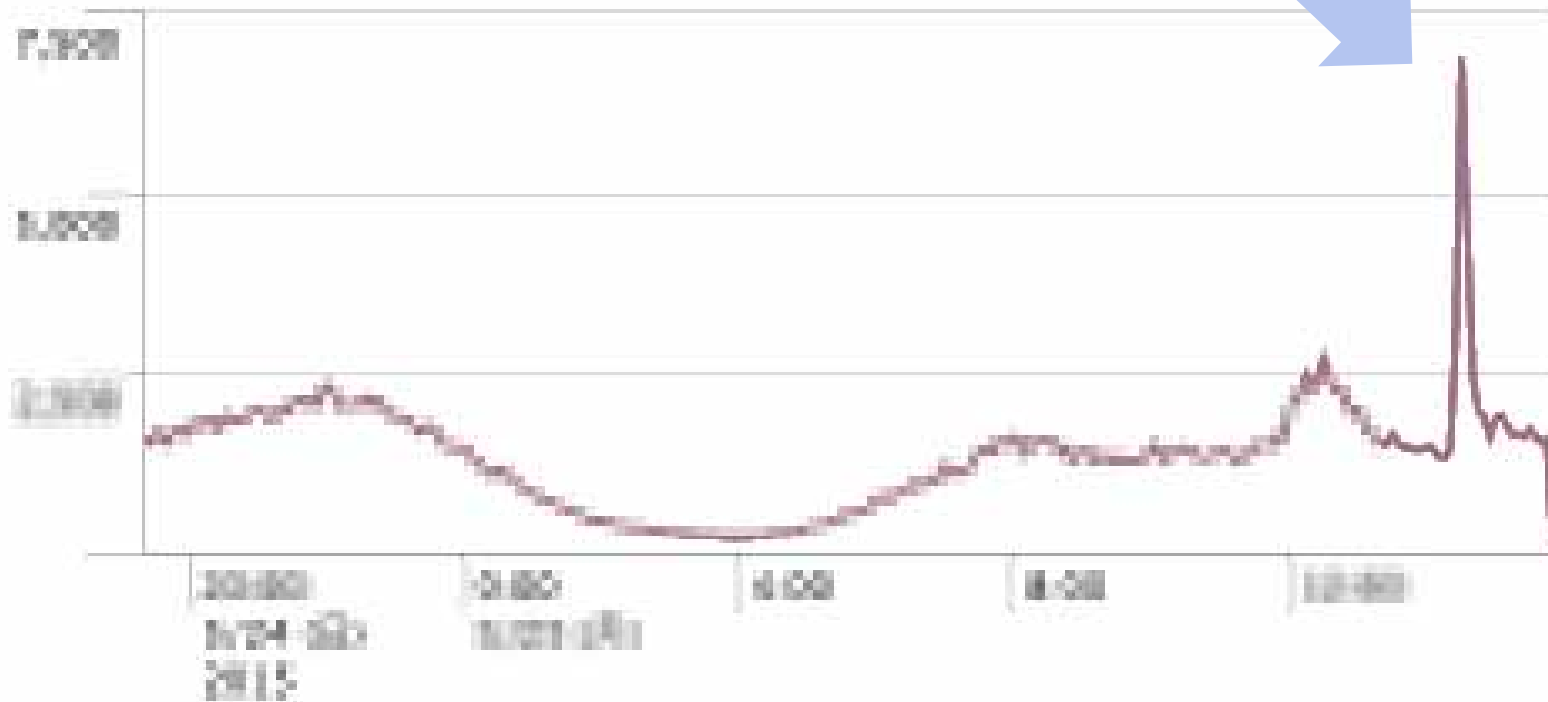
What s happening?

P10





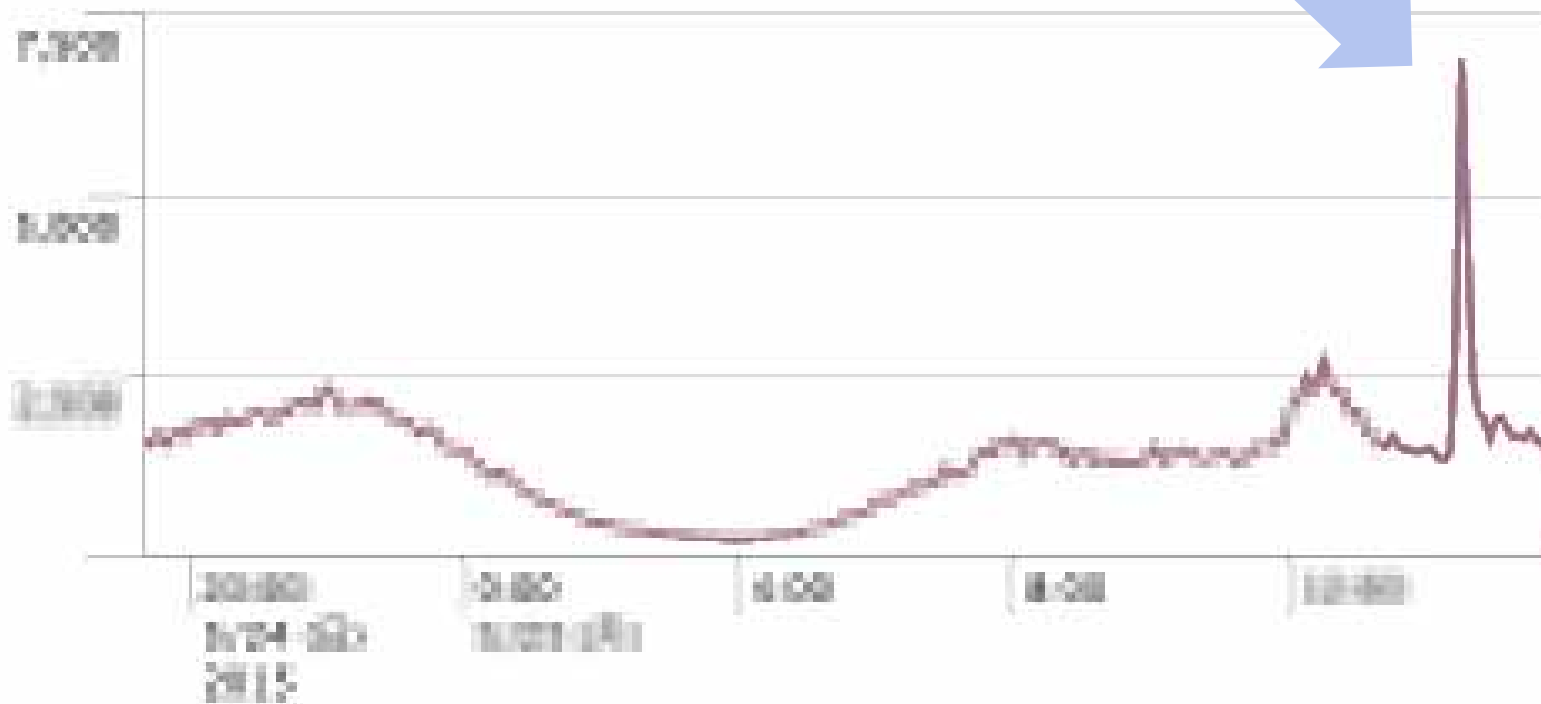
We have given only few ten seconds till the traffic comes to the peak.





Why does it happen?

P12





- Urgent notification for disaster prevention
- Weather report

Examples of emergency notification

- Earthquakes, Tsunami, Volcano, Heatstroke, Rain storms





We have apps to give information to people

P14

We use the applications that cannot be stopped on OpenStack.





- Rapid provisioning of the resources are required.
- Works properly in case of an emergency.
- It s important to have the same API in any operating environments whether it s KVM, VMware, or Container.

Our mission is abstraction of the data center and OpenStack is in the core.



Things that we want to in the beginning

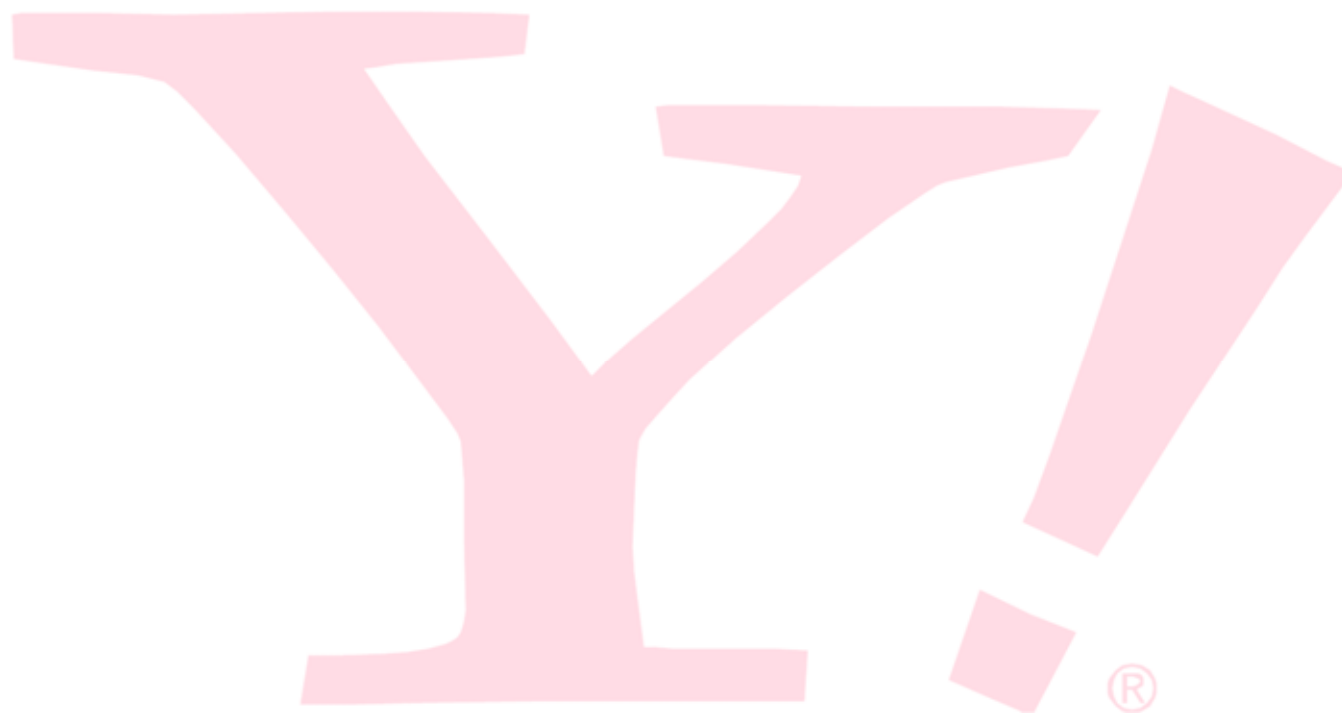
P16



In Yahoo! JAPAN, OpenStack is operated as an infrastructure to support the people.

- One of the good thing of the OSS is that everyone s effort creates various opportunities.
- Activities in the OpenStack community supports important applications.

Thank you so much to everyone of OpenStacker.





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- Running 50000+ instances
- Availability 99.996%
- 6 times more traffic density
(Compared to the physical environment)
- 20PB in the data storage
- 20 clusters operating
- 6 developers, 4 operators



1 year ago

Instance

25k+



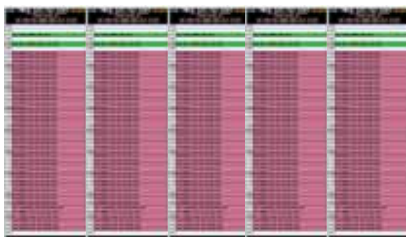
Machine

2k+



Rack

50



Today

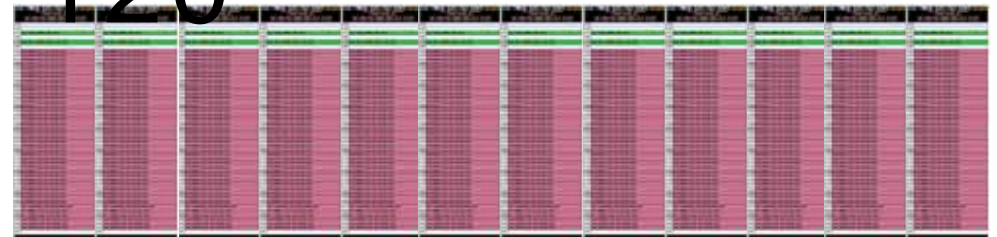
50k+



4k+



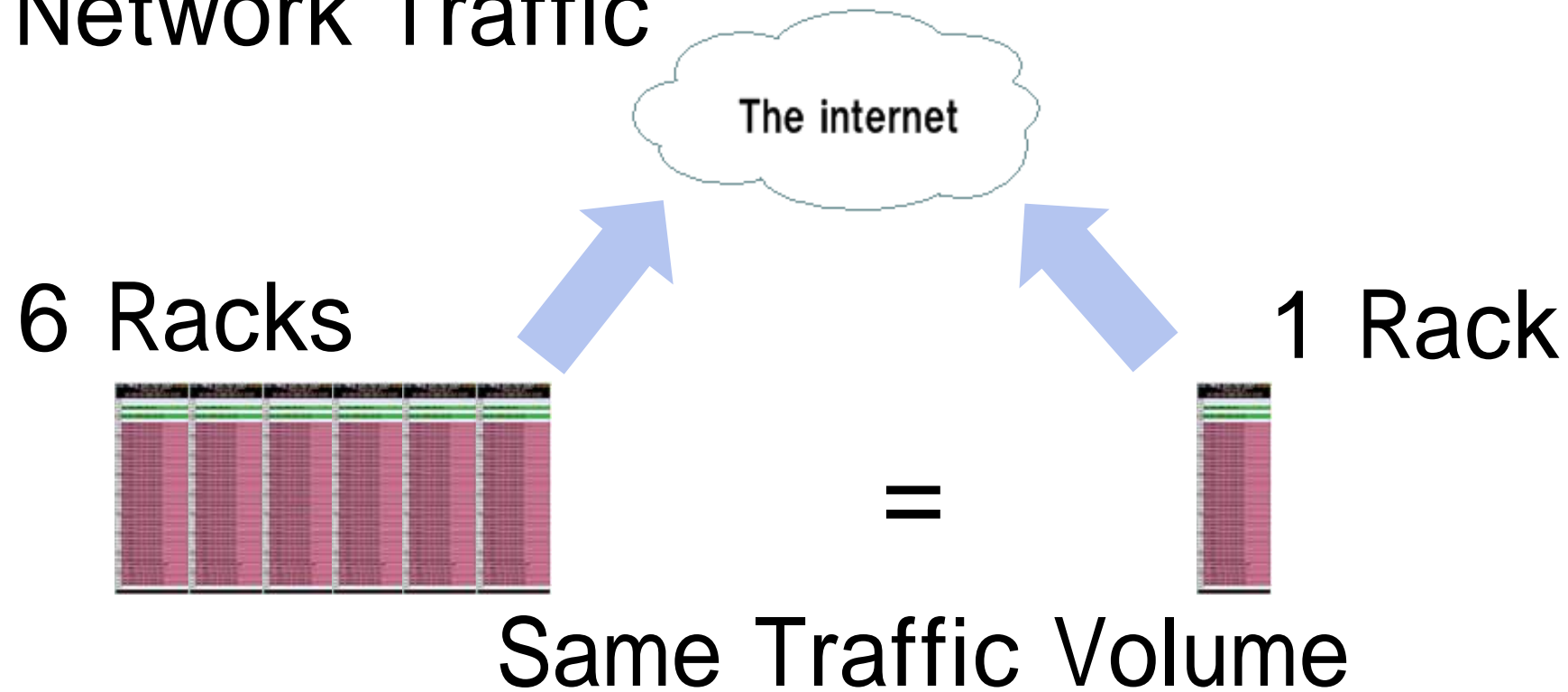
120





Different Environment OpenStack Environment

Network Traffic





2 years ago

Today

Instance Density

400 / Rack

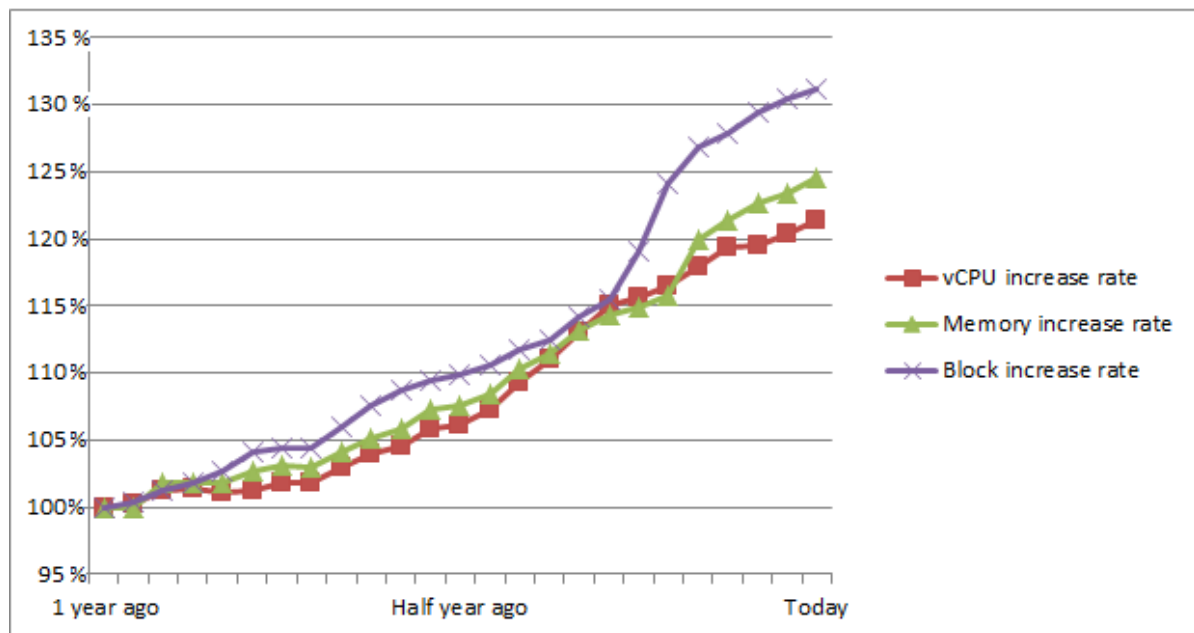
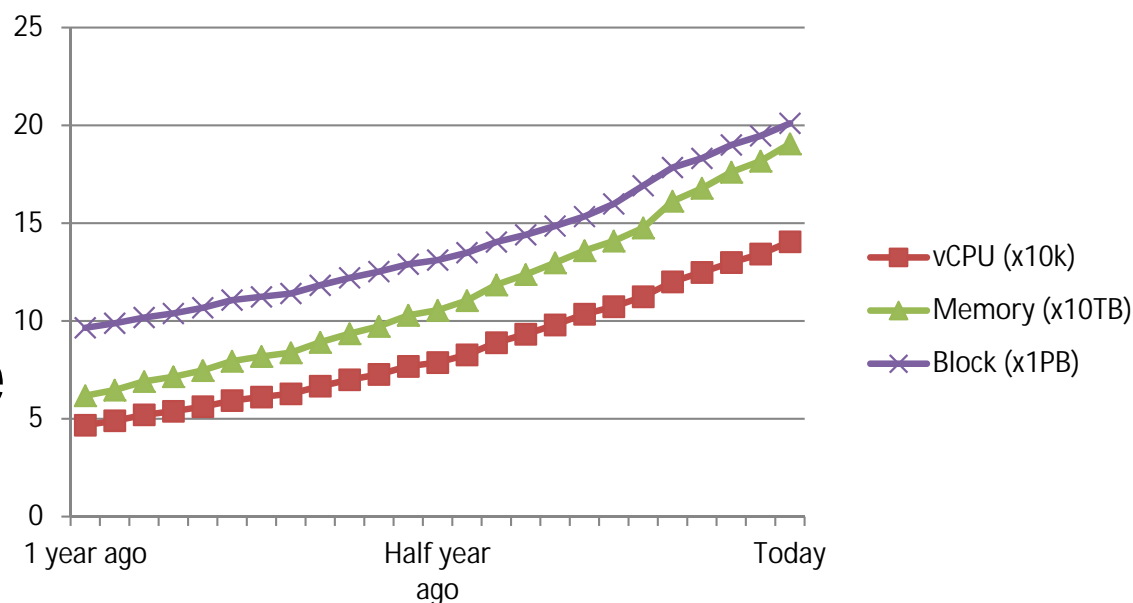


2000 / Rack



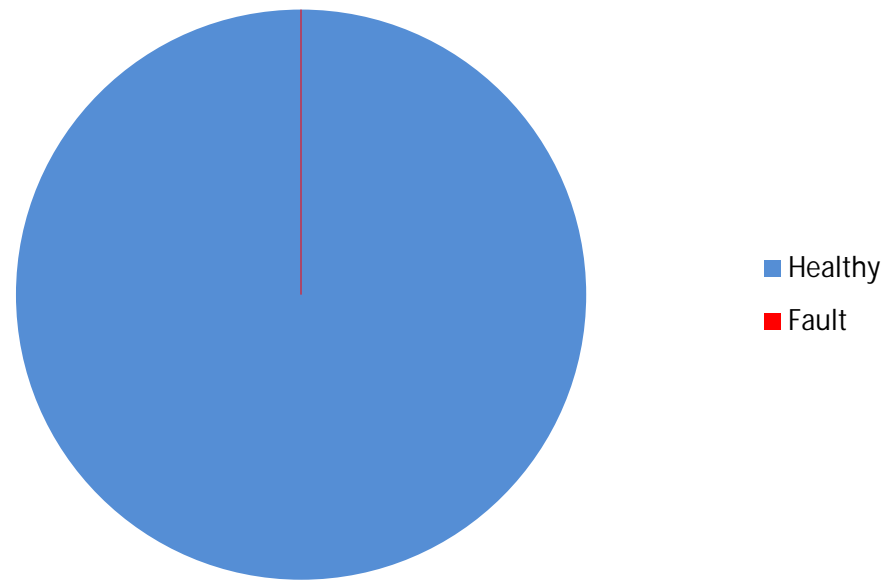


150k Cores
200TB Memory
20PB Data Storage



The increase rate of each resources for an instance.

- We achieved 99.996% availability for the total operating time of all hypervisors in Yahoo! JAPAN.

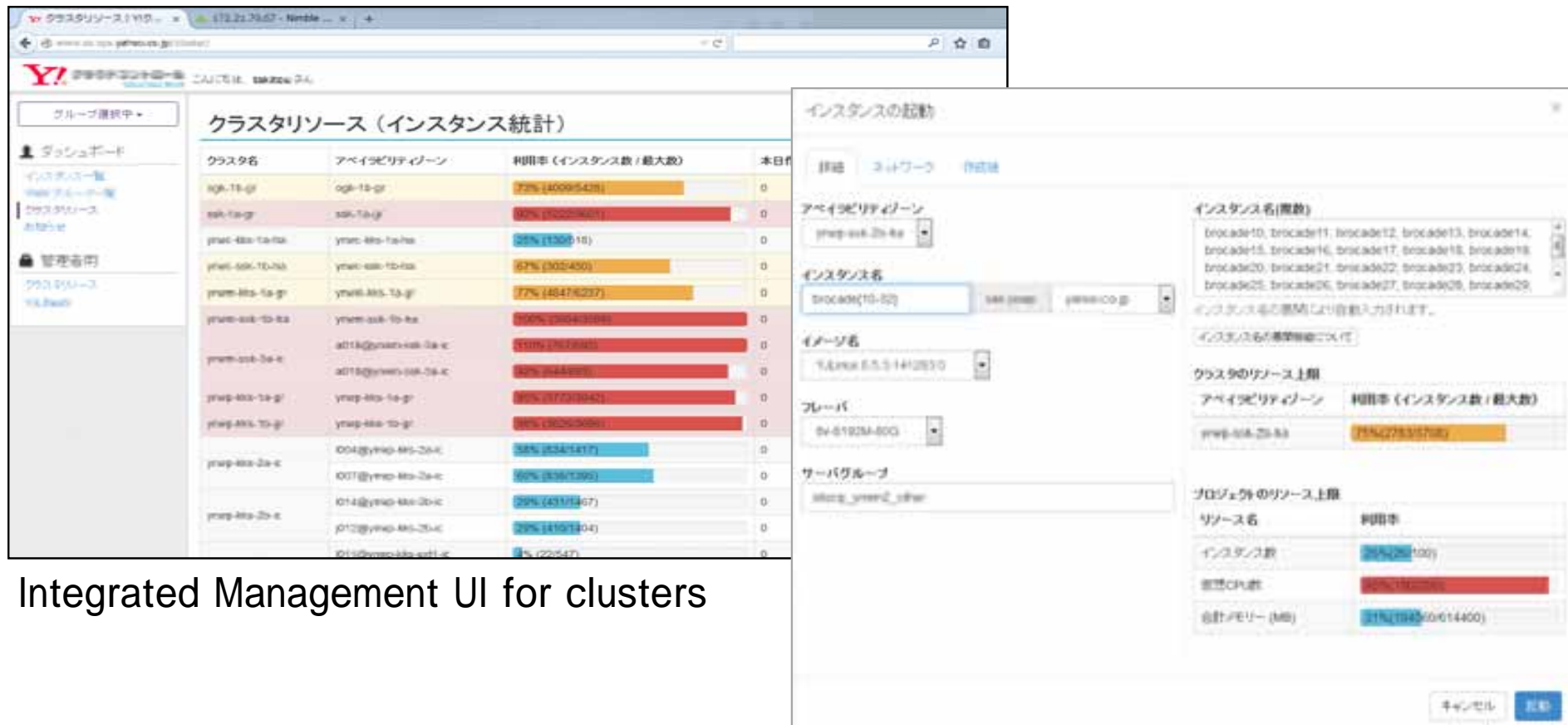


Made a pie chart, but “failure rate” is not visible... :)



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Since there are more than 20 clusters, we provide integrated management UI.

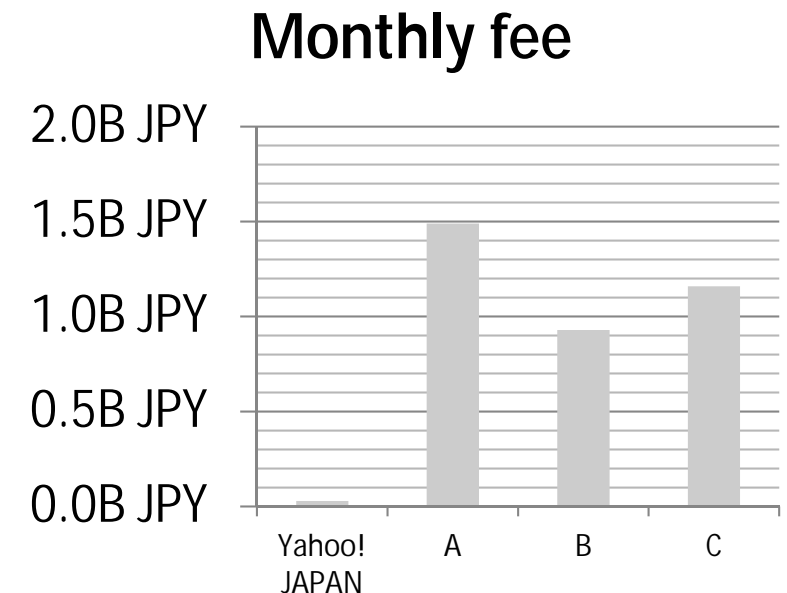




- Most of the data center resources can be self served by OpenStack.
 - The developers can make their services by their wish.
- The developers can use it any time.
 - No waiting time like in physical environments.



- We provide the resources to 2000 people equally.
 - OpenStack support team responses to the incidents immediately.
 - Recently, non - engineers started to use them.
- 500 new instances created each day.
 - Half of them are removed in a month.
 - Created automatically without engineer s operation.
- Low cost
 - Reduced by 97% if we use the same resources from the public cloud.



- Bill when used
 - Billed based on the time that used.
- Salvage the unused instances
 - Show the instances that uses less CPU, I/O, and network to the user and salvage them if it is OK.

We must avoid wasting resource.

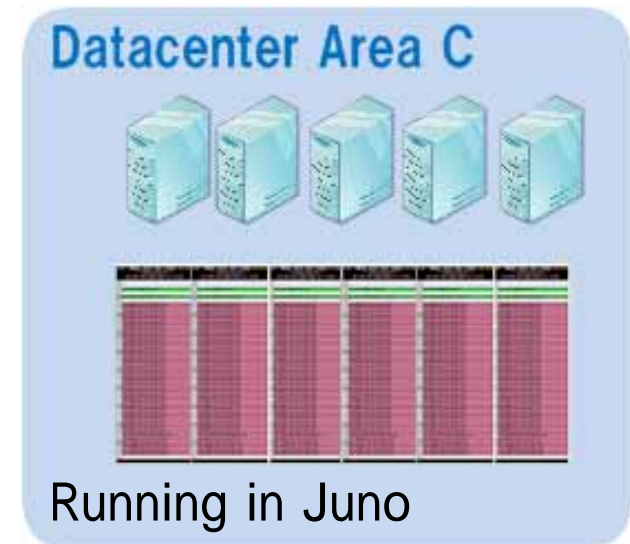
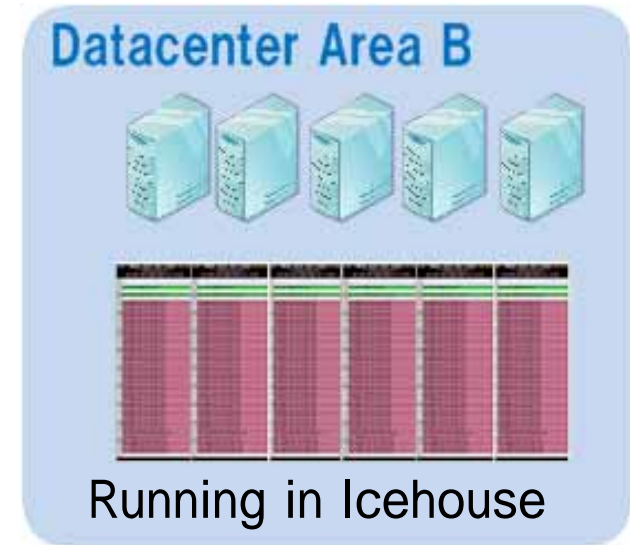
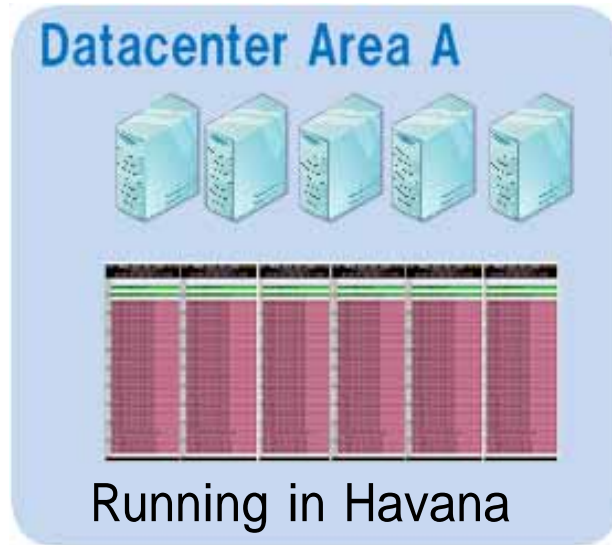
Internal users should be cost conscious.



Explain the managements of the data center using OpenStack

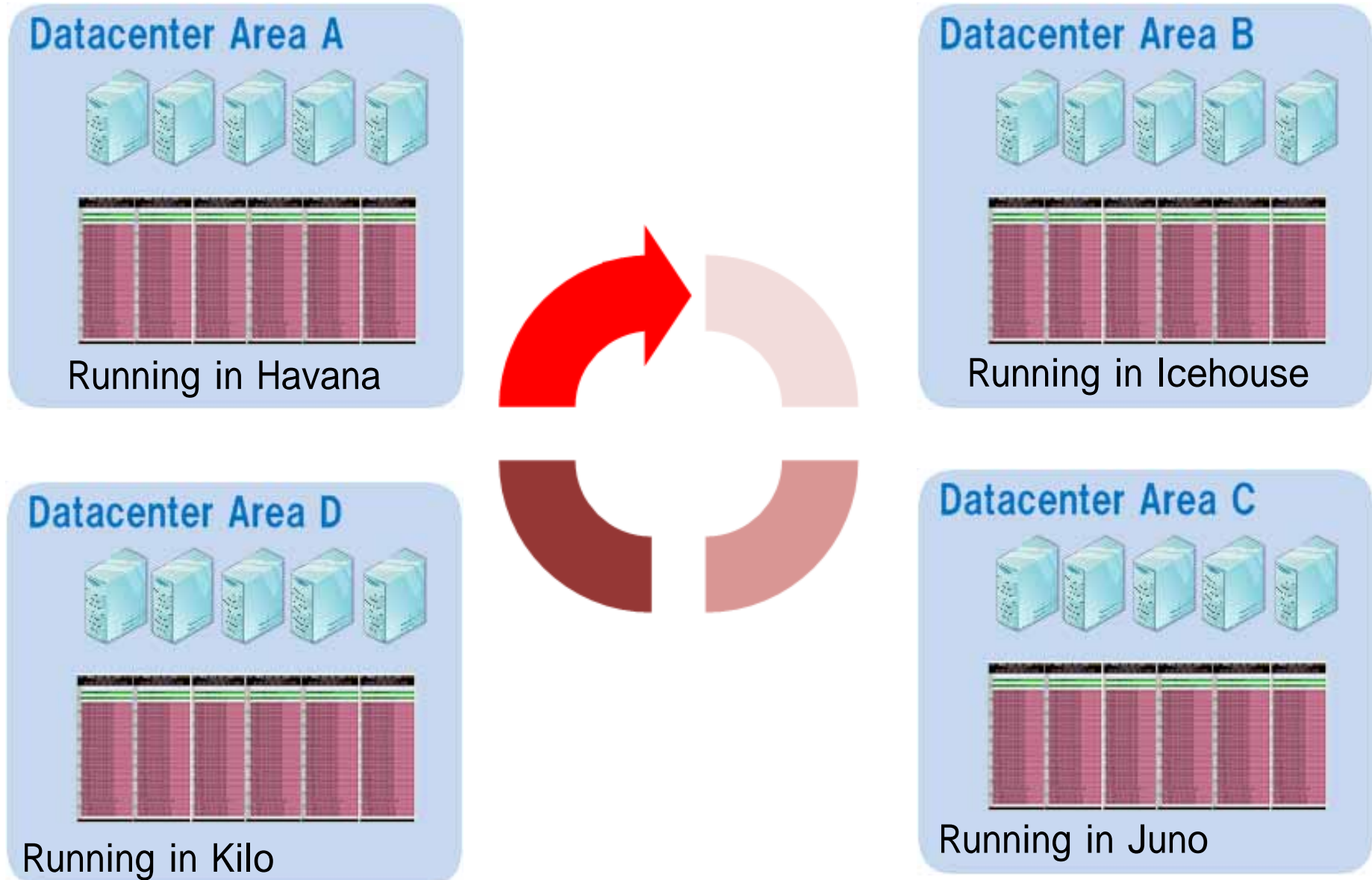


1. OpenStack clusters operating



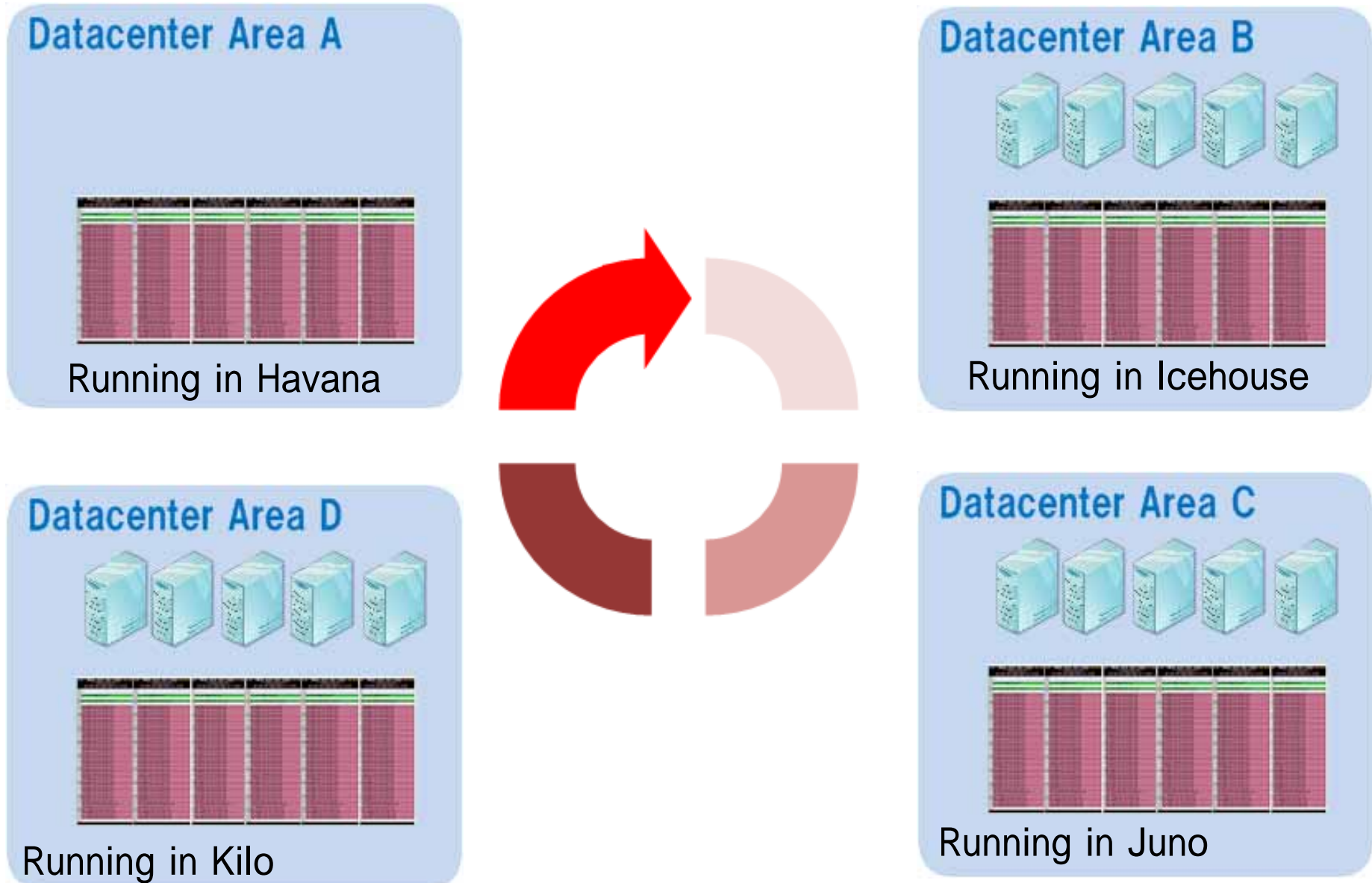


2. When Liberty is released



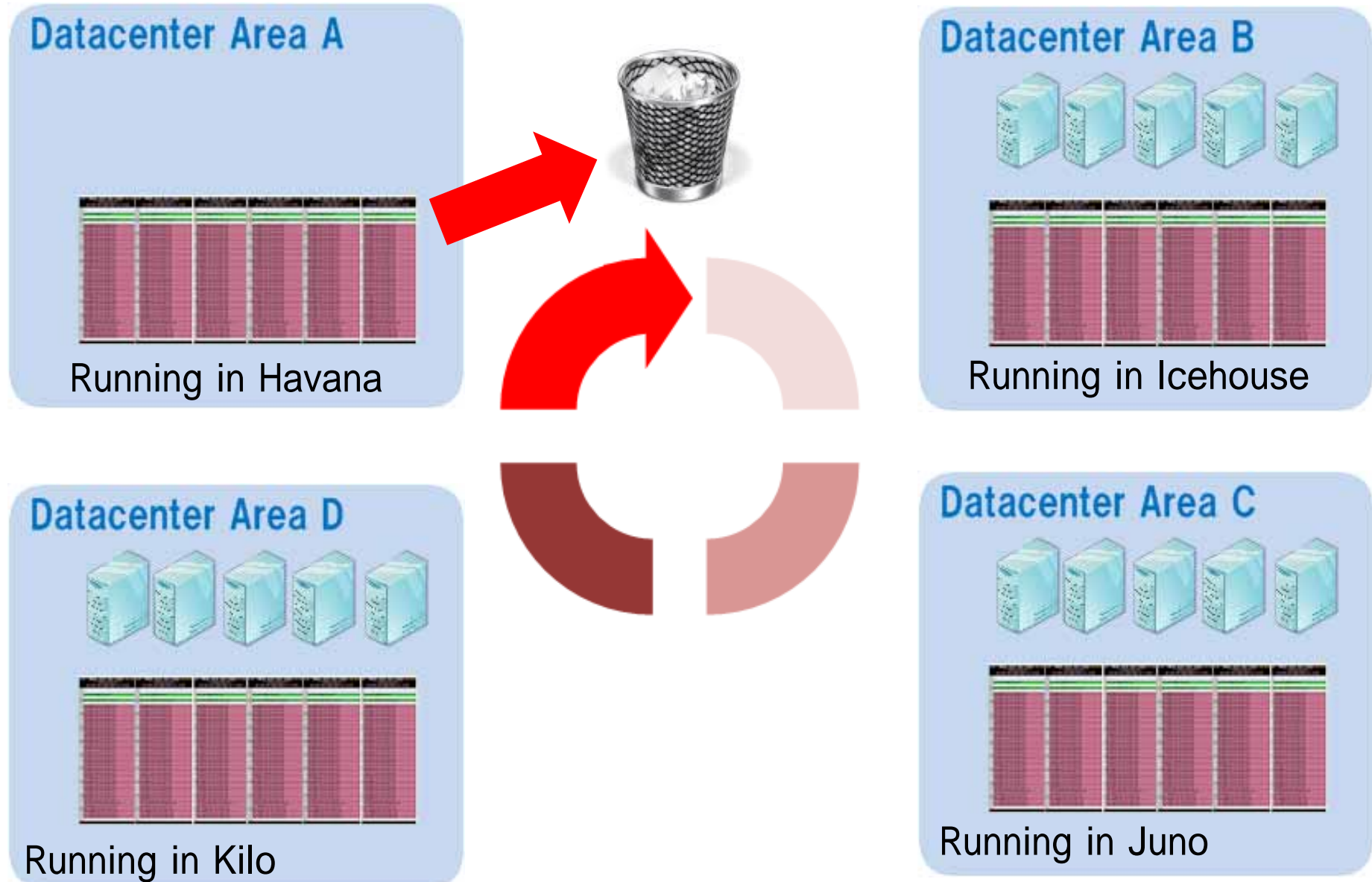


3. Instances in the old cluster will be shutdown.





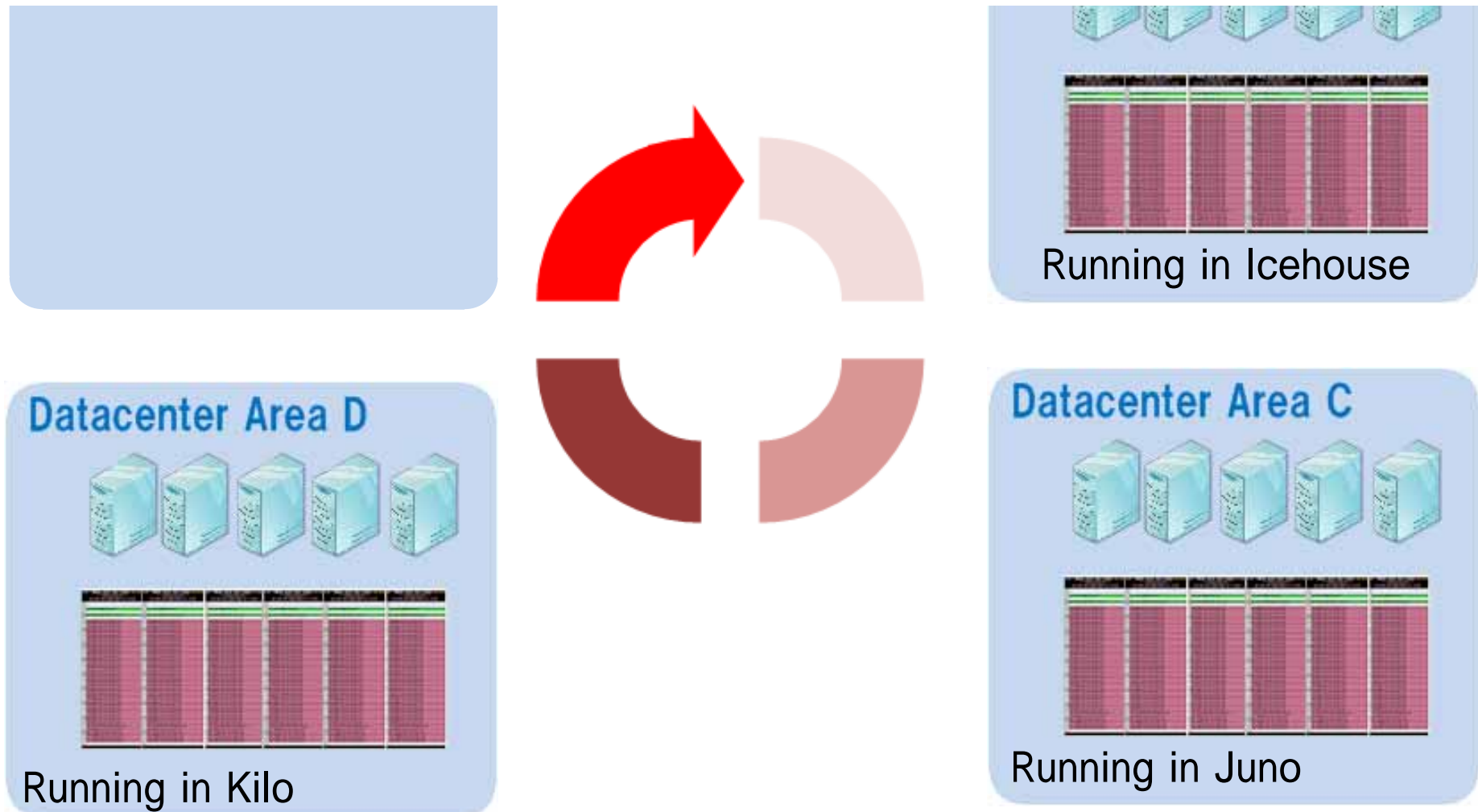
4. Old cluster will be deleted





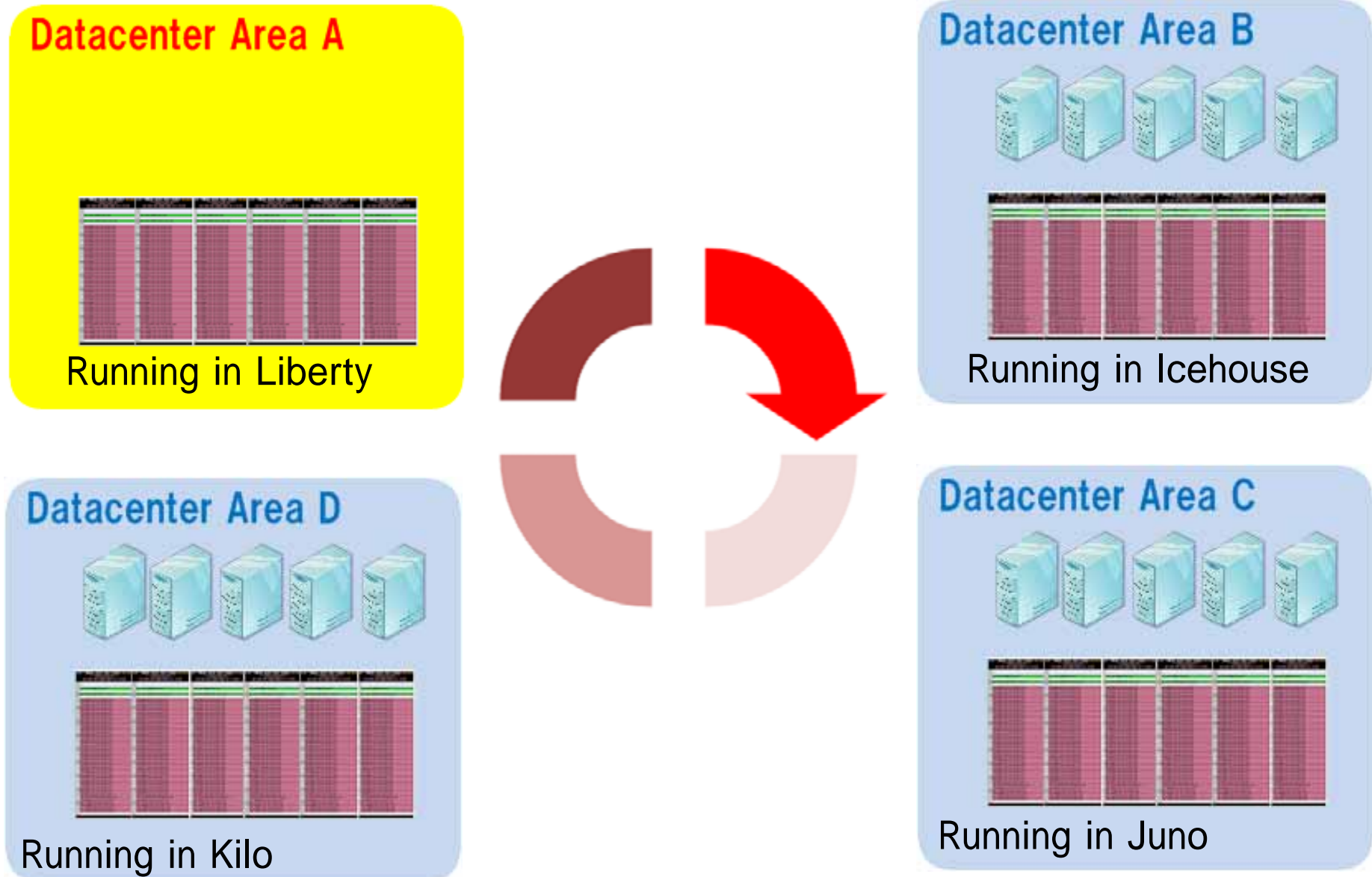
5. The area had been vacant.

If the data center is old, scrap the data center and build the new data center



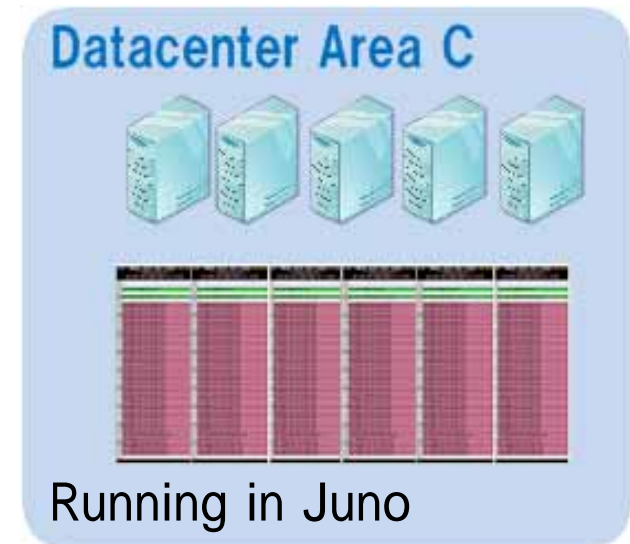
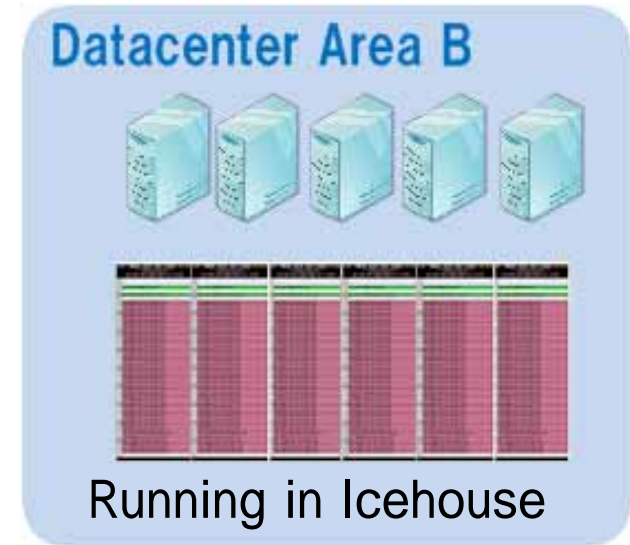
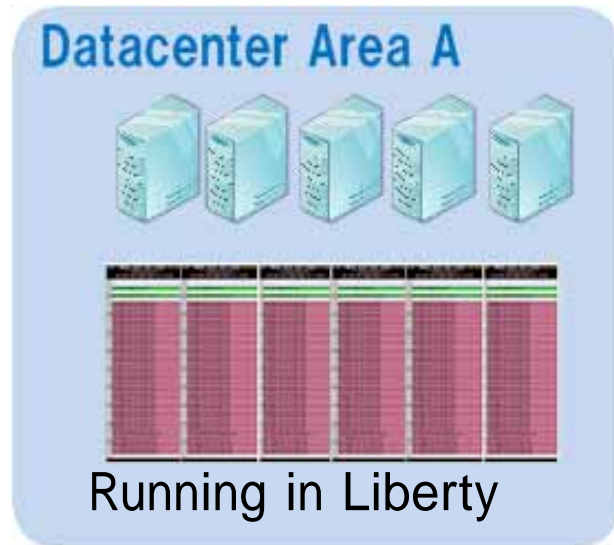


6. Liberty will be created



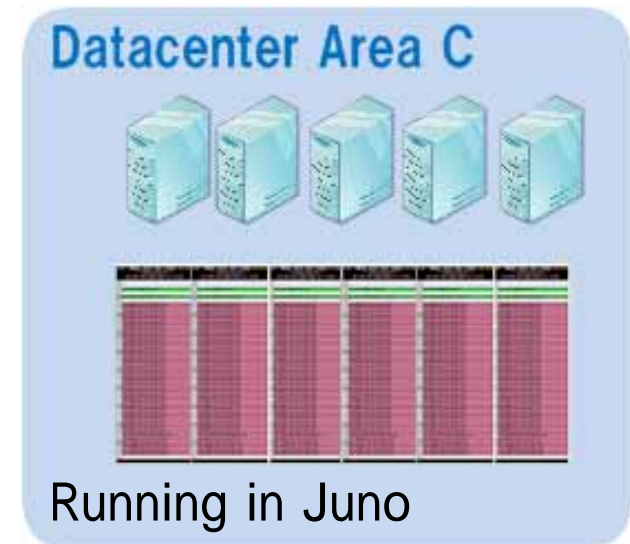
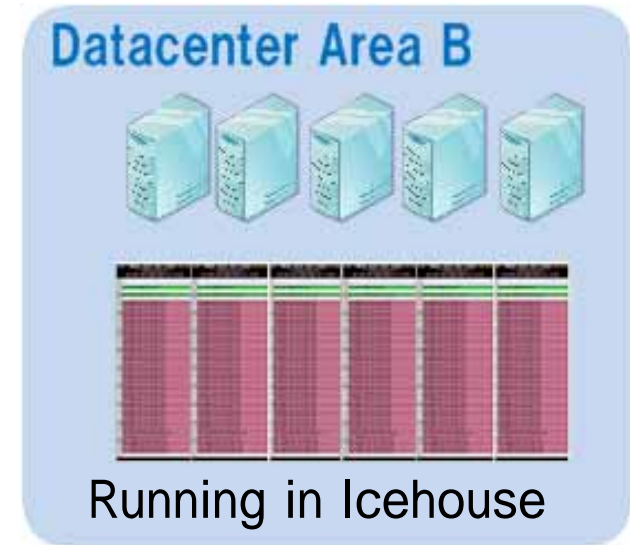
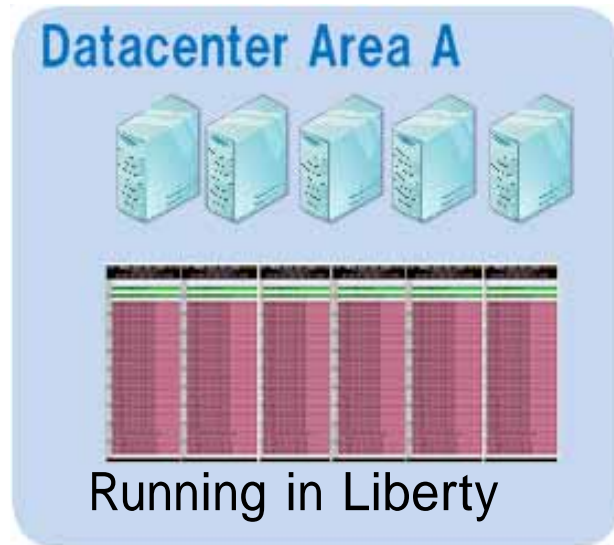


7. Instances will be activated



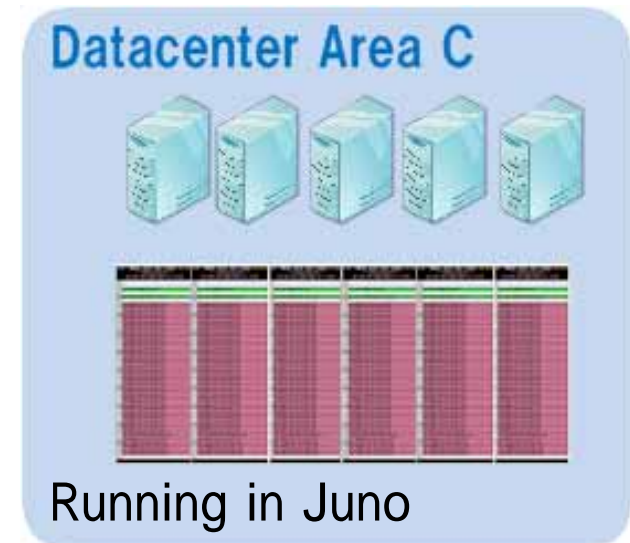
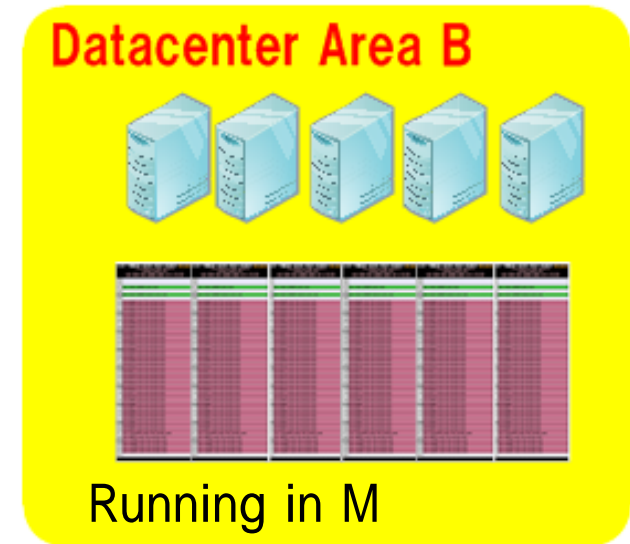
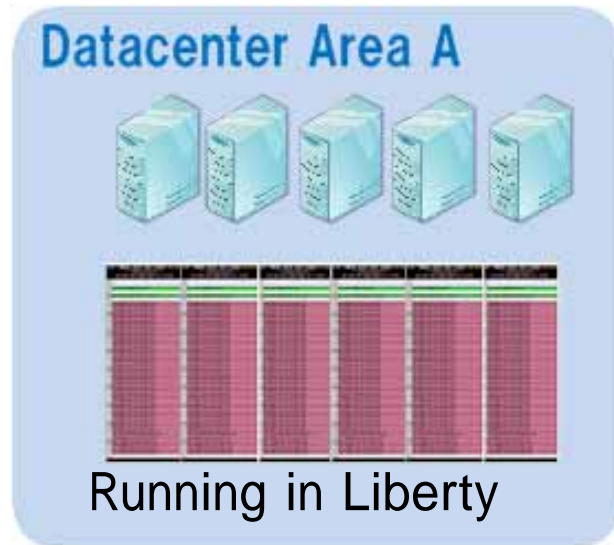


8. Then, M is released



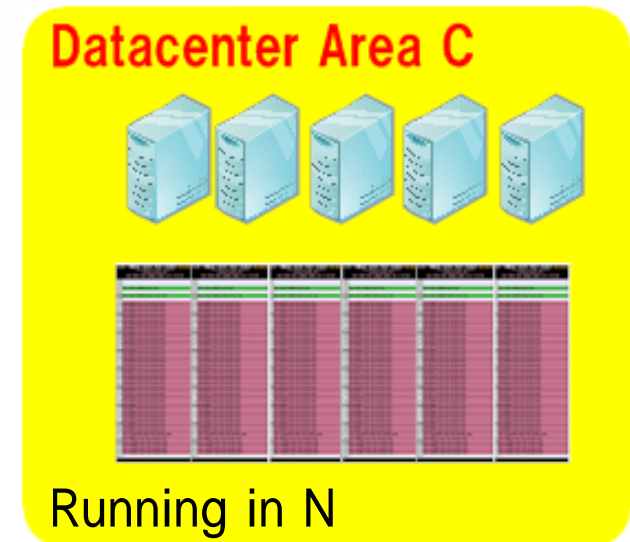
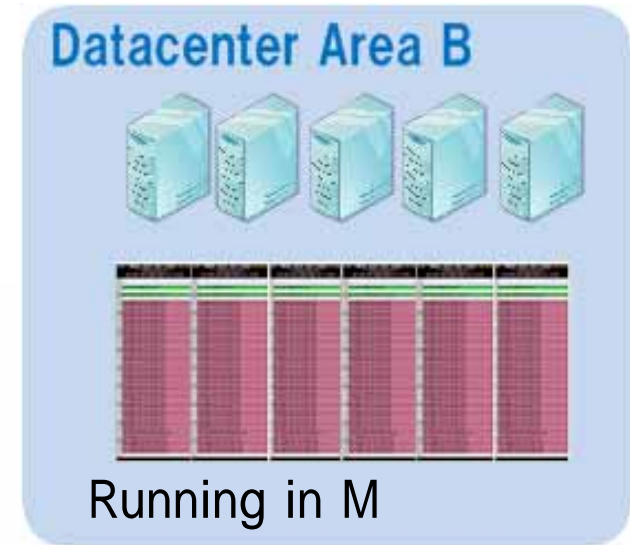
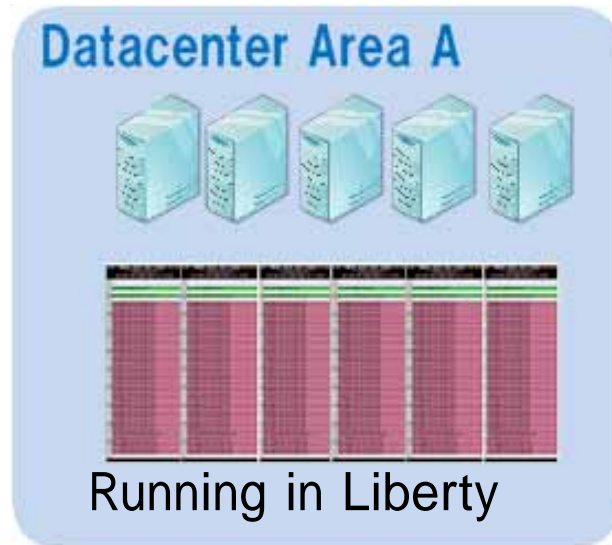


9. Instances are activated in M



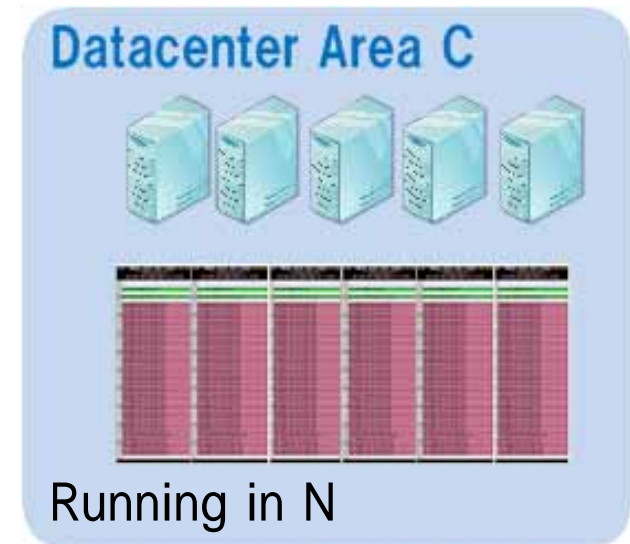
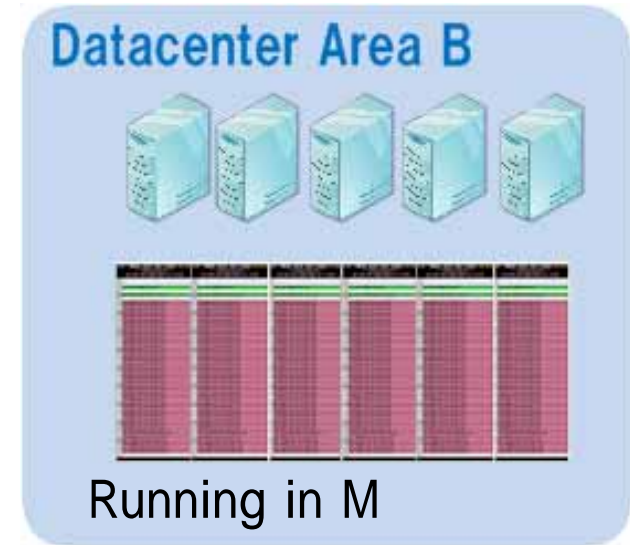
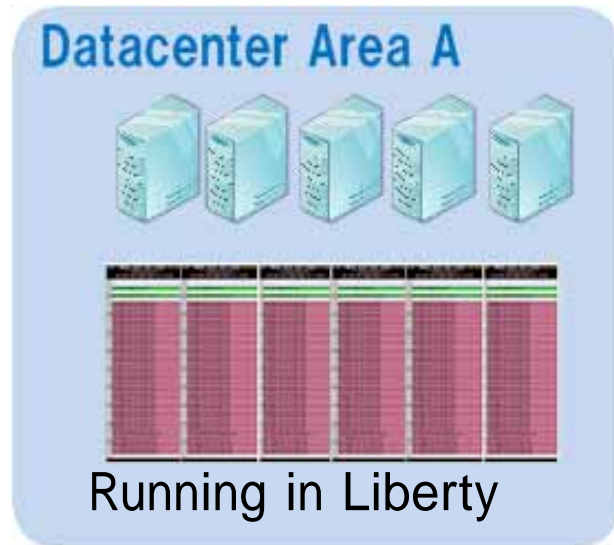


10. N has been released and the instances are activated in N.





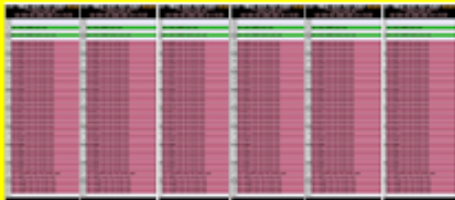
11. O...





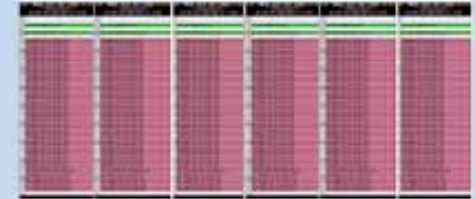
11. P...

Datacenter Area A



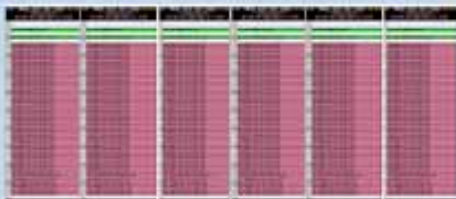
Running in P

Datacenter Area B



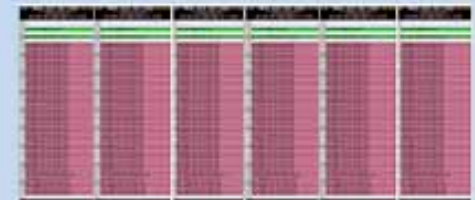
Running in M

Datacenter Area D



Running in O

Datacenter Area C

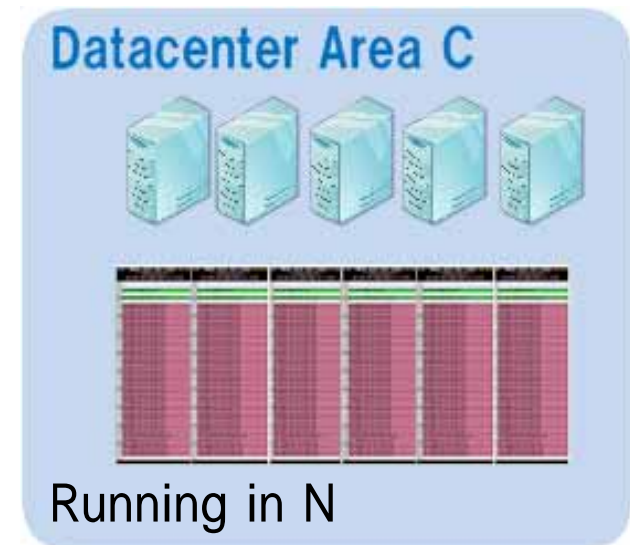
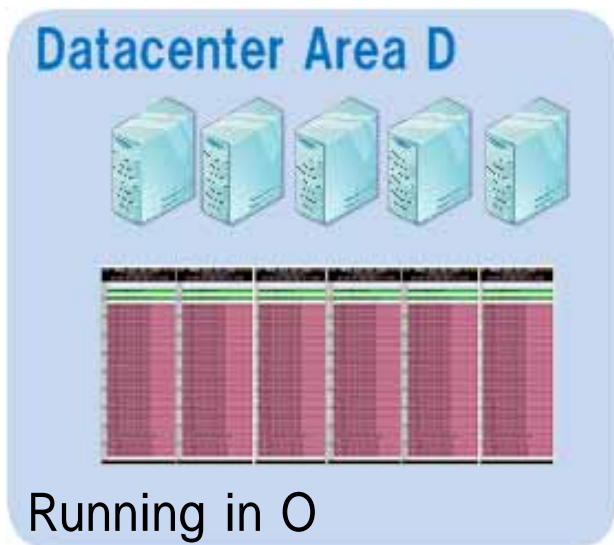
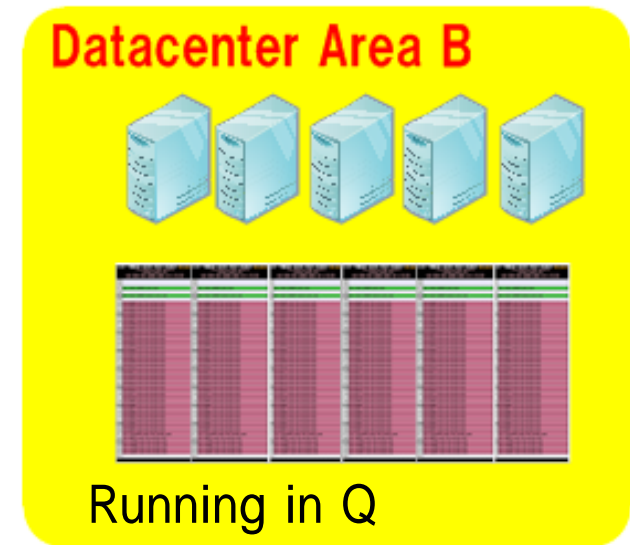
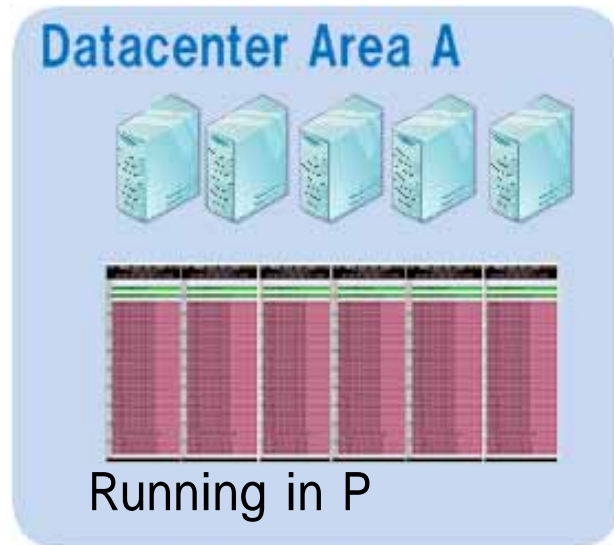


Running in N





12. Q...

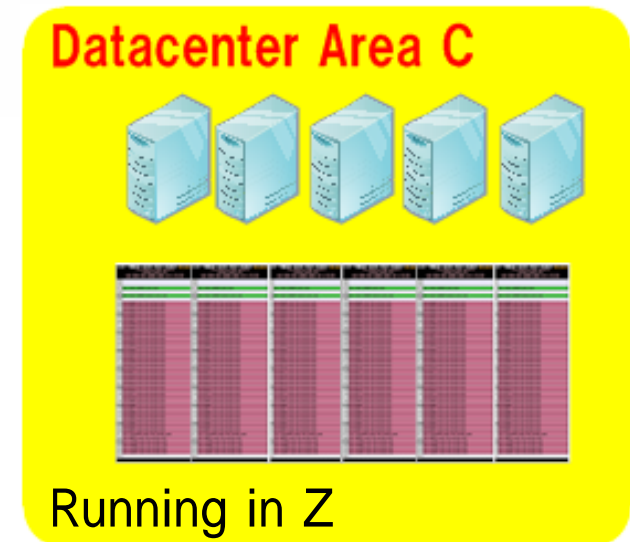
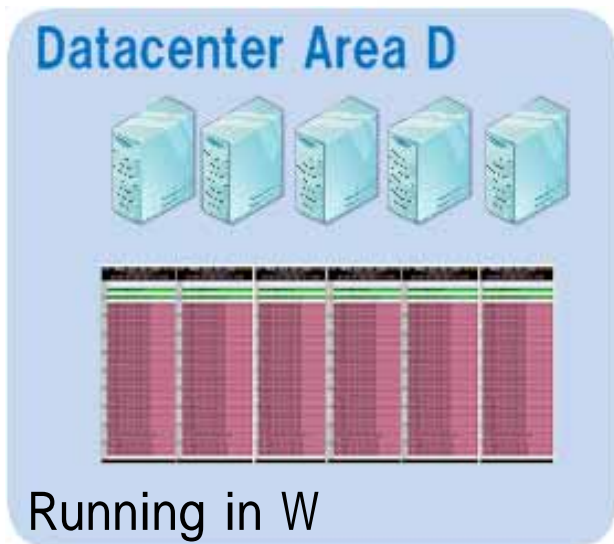
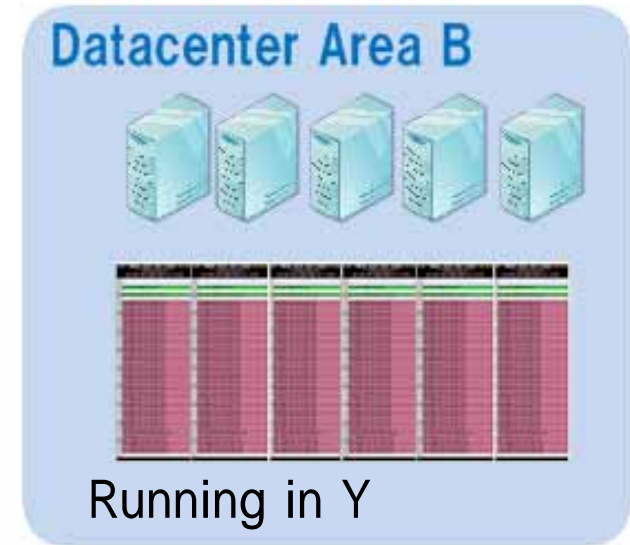




Few years later..



What s next of Z... :)





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- In-house development
 - provide function of IaaS
 - Running 10k+ instances
 - unique APIs
 - OSS does not cooperate

Basic Functions
of IaaS

Minor Functions
of vendors

Unique Functions
of in-house

In-house
development

- Use OpenStack (FY2013 or later)

- Common APIs are available
- Basic functions are those community will provide
- Appliance functions are those we will develop with vendors
- In-house functions are those in-house will develop.



Basic Functions
of IaaS

Minor Functions
of vendors

Unique Functions
of in-house

Growth
with communities

Development
with vendors

In-house
development



- Data Center Life Cycle Management
 - We want to use the evolving data center
- Data Center Abstraction (Hardware Abstraction)
 - We can use the same APIs in all environment
 - Users are not aware of the physical differences
 - Good things can be using in good timing
- Reduce the cost
 - It is necessary that user should be aware of the cost

We believe Co - Creation is important

- We have jointly developed with the vendors, return it to the community.

A large, light pink graphic of the letter 'Y' followed by an exclamation mark, serving as a background for the text.

Thank you!