

关于云计算可用性的定性与定量研究

(A Qualitative and Quantitative Study on Availability of Cloud Computing)

(第六部分)

陈怀临, 弯曲评论创办人
北极光创投投资顾问, 云基地中云网技术顾问

Email: huailin@gmail.com

4 案例研究--亚马逊AWS

4.3 Amazon AWS服务宕机调查 (2010)

2010年, Amazon主站点和AWS比较明显的服务宕机事故大约为11次. 可计算的总共受到的影响时间大致为75+个小时.

11. May 4, 2010

AWS的EC2遭受电源事故. 影响到了一个数据中心的部分用户. 有部分用户丢失了EBS数据.

事故原因: 电源

事故恢复:4个小时

事故解释: 技术人员切换电源系统时操作失误.

相关URL:

<http://www.datacenterknowledge.com/archives/2010/05/10/amazon-addresses-ec2-power-outages/>

Summary: Amazon EC2 experienced a power outage due to data center technicians shifting power to a new substation

Amazon EC2 experienced two power outages on May 4 and an extended power loss early on Saturday, May 8. In each case, a group of users in a single availability zone lost service, while the majority of EC2 users remained unaffected. The first outage on May 4 occurred as data center technicians were shifting power to a new substation from the local power utility. “During a power cut-over at 2:22 a.m. PDT, a single UPS failed to appropriately transfer power to the back-up generators,” Amazon reported. The UPS unit failed to detect a drop in input power and shift the load to batteries, and subsequently the generator. Amazon was able to bypass the problematic UPS and provide generator power directly to the affected racks. Most of customer instances were recovered by 3:40 a.m. Pacific, and virtually all of them were recovered by 4:00 a.m. Pacific.

Number Affected: Unknown

Organization: Amazon Web Services

- Affected Service: Amazon Elastic Compute Cloud (Amazon EC2)

Reported Date: 2010-05-04

Incident Duration: 4 hours

12. May 4, 2010

AWS的EC2遭受第2次电源事故. 影响到了一个数据中心的部分用户. 有部分用户丢失了EBS数据.

事故原因: 电源

事故恢复:55分钟

事故解释: 在试图恢复第一个事故的时候,启动了备用电源. 技术人员的错误操作是备用电源也失去动力.

相关URL:

<http://www.datacenterknowledge.com/archives/2010/05/10/amazon-addresses-ec2-power-outages/>

Summary: Amazon EC2 experienced a power outage due to a human error causing the back-up generator to lose power

Amazon EC2 experienced two power outages on May 4 and an extended power loss early on Saturday, May 8. In each case, a group of users in a single availability zone lost service, while the majority of EC2 users remained unaffected. Later that day, while the affected racks were still being powered by the back-up generator, a human error caused the back-up generator to lose power, Amazon said. The generator was reset and power was again restored to the racks, with most customers regaining service between 6:45 p.m. and 7:40 p.m. Pacific time. The next day Amazon completed installation of a replacement UPS unit.

Number Affected: Unknown

Organization: Amazon Web Services

- Affected Service: Amazon Elastic Compute Cloud (Amazon EC2)

Reported Date: 2010-05-04

Incident Duration: 55 minutes

13. May 8, 2010

AWS的EC2遭受电源事故. 影响到了一个数据中心的部分用户

事故原因: 电源

事故恢复: N/A

事故解释: 一个数据中心的一些机架的电源故障.

相关URL:

<http://www.datacenterknowledge.com/archives/2010/05/10/amazon-addresses-ec2-power-outages/>

Amazon Addresses EC2 Power Outages

By: Rich Miller

May 10th, 2010

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Amazon Web Services says it is making changes in its data centers to address a series of power outages last week that affected some users of its EC2 cloud computing service. Amazon EC2 experienced two power outages on May 4 and an extended power loss early on Saturday, May 8. In each case, a group of users in a single availability zone lost service, while the majority of EC2 users remained unaffected.

“As a result of the recent power events, we are working on non-intrusive changes to our power distribution architecture to significantly reduce the number of instances that can be affected by failures like we have seen in the last week,” Amazon said Sunday in an incident report on its status dashboard. “This work is under way and will be carefully performed over the coming months throughout our datacenters.”

Seven-Hour Outage

Saturday’s outage began at about 12:20 a.m. and lasted until 7:20 a.m., and affected a “set of racks,” according to Amazon, which said the bulk of customers in its U.S. East availability zone remained unaffected.

14. May 13, 2010

AWS的EC2遭受电源事故。这使得Amazon在5月份1周内连续4次由于电源问题导致服务宕机。

事故原因: 电源

事故恢复: 1个小时

事故解释: 东部的一个数据中心由于汽车事故撞坏了电线杆.导致EC2服务宕机.

相关URL:

<http://www.datacenterknowledge.com/archives/2010/05/13/car-crash-triggers-amazon-power-outage/>

Car Crash Triggers Amazon Power Outage

By: Rich Miller

May 13th, 2010

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Amazon's EC2 cloud computing service suffered its fourth power outage in a week on Tuesday, with some customers in its US East Region losing service for about an hour. The incident was triggered when a vehicle crashed into a utility pole near one of the company's data centers, and a transfer switch failed to properly manage the shift from utility power to the facility's generators.

Amazon Web Services said a "small number of instances" on EC2 lost service at 12:05 p.m. Pacific time Tuesday, with most of the interrupted apps recovering by 1:08 p.m. The incident affected a different Availability Zone than the ones that experienced [three power outages](#) last week.

The sequence of events was reminiscent of a [2007 incident](#) in which a truck struck a utility pole near a Rackspace data center in Dallas, taking out a transformer. The outage triggered a thermal event when chillers struggled to restart during multiple utility power interruptions.

15. June 27, 2010

Amazon的主站零售业务服务宕机. 事故影响面主要在Amazon的零售主业务上, 没有对AWS的公有云服务造成影响. Amazon当天的股票大跌7.8%.

事故原因: N / A

事故恢复:3个小时

事故解释: Amazon没有对事故作出相应的技术解释.

相关URL: http://news.cnet.com/8301-1023_3-20009241-93.html

Amazon.com experiences hours-long outage

Online retailer experiences an unusually long outage that frustrates customers by displaying blank product pages and empty shopping carts.



by Declan McCullagh | June 29, 2010 7:23 PM PDT

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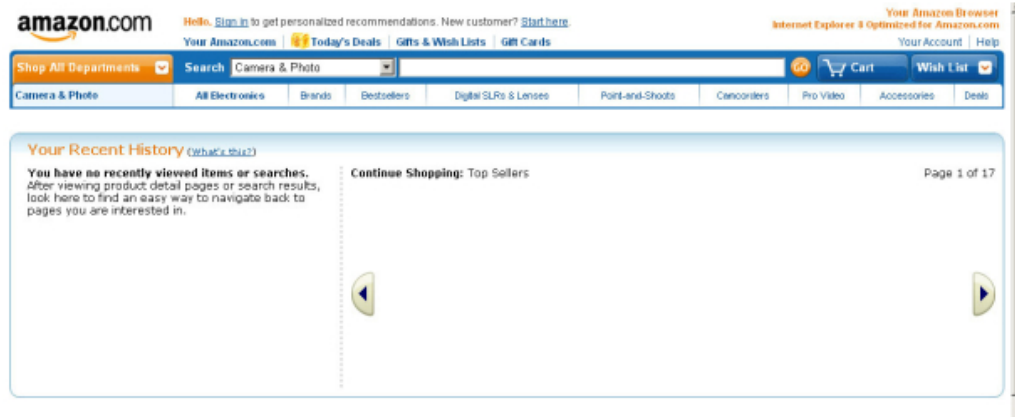


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16. Sept 28 . 2010

Amazon位于东部的EC2 USA-EAST-1的数据中心宕机. EC2服务受到影响.

事故原因: EC2

事故恢复: 1个小时

事故解释: 数据中心网络出现问题, 导致EC2服务中断.

相关URL:

<http://cloutage.org/incidents/346-amazon-web-services-amazon-elastic-compute-cloud-amazon-ec2>

EC2's USA-EAST-1 datacenter experienced network connectivity issues.

Number Affected: Unknown

Organization: Amazon Web Services

- Affected Service: Amazon Elastic Compute Cloud (Amazon EC2)

Reported Date: 2010-09-28

Occurred Date: 2010-09-28

Incident Duration: 1 hour

17. Oct 01, 2010

CloudFront 服务宕机

事故原因: CloudFront 控制API连接超时

事故恢复: 45分钟

事故解释: N/A

相关URL: <http://cloutage.org/incidents/320-amazon-web-services-amazon-cloudfront>

Summary: CloudFront API Experiences Increased Latency

Requests to CloudFront's control API experienced increased latency. According to Amazon, CloudFront's ability to serve content was not affected.

Number Affected: Unknown

Organization: Amazon Web Services

- Affected Service: Amazon CloudFront

Reported Date: 2010-10-01

Occurred Date: 2010-10-01

Incident Duration: 45 minutes

18. Oct 08, 2010

EC2服务宕机

事故原因: CloudFront Auto-Scaling Triggers Fail

事故恢复: N/A

事故解释: N/A

相关URL:

<http://cloutage.org/incidents/299-amazon-web-services-amazon-elastic-compute-cloud-amazon-ec2>

Summary: CloudFront Auto-Scaling Triggers Fail

Auto-scaling triggers from the US West-1 region were not executing.

Number Affected: Unknown

Organization: [Amazon Web Services](#)

- Affected Service: [Amazon Elastic Compute Cloud \(Amazon EC2\)](#)

Reported Date: 2010-10-08

Occurred Date: 2010-10-08

19. Oct 12, 2010

EBS服务性能下降和宕机

事故原因: 东部数据中心的EBS服务出现显著延时.

事故恢复: N/A

事故解释: N/A

相关URL:

<http://cloutage.org/incidents/286-amazon-web-services-amazon-elastic-block-store-amazon-eb-s>

Summary: Amazon ESB Experiences Performance Latencies

The us-east-1 region experienced increased latency on read/write operations for a single availability zone.

Number Affected: Unknown

Organization: [Amazon Web Services](#)

- Affected Service: [Amazon Elastic Block Store \(Amazon EBS\)](#)

Reported Date: 2010-10-12

Occurred Date: 2010-10-12

20. Oct 26, 2010

东部数据中心EC2出现连接问题

事故原因: 东部数据中心的EBS服务出现显著延时.

事故恢复:75个小时

事故解释: N/A

相关URL:

<http://cloutage.org/incidents/342-amazon-web-services-amazon-elastic-compute-cloud-amazon-ec2>

Summary: EC2 US East Region Outage

The US-EAST-1 region instances experienced connectivity issues.

Number Affected: Unknown

Organization: [Amazon Web Services](#)

- Affected Service: [Amazon Elastic Compute Cloud \(Amazon EC2\)](#)

Reported Date: 2010-10-26

Occurred Date: 2010-10-26

Incident Duration: 3 days and 3 hours

21. Nov 01, 2010

Amazon在欧洲的数据中心的EC2和EBS服务宕机,

事故原因: EC2和EBS API服务出现异常的高错误率.

事故恢复:N/A

事故解释: N/A

相关URL:

<http://cloutage.org/incidents/384-amazon-web-services-amazon-elastic-compute-cloud-amazon-ec2-amazon-elastic-block-store-amazon-ebs>

Summary: Amazon Web Services EC2 API Outage

EC2 and EBS API calls in the EU-West-1 regions experienced elevated error rates. Amazon initially restored all API calls with the exception of CreateSnapshot. Eventually Amazon restored all the APIs.

Number Affected: Unknown

Organization: Amazon Web Services

- Affected Service: Amazon Elastic Compute Cloud (Amazon EC2)
- Affected Service: Amazon Elastic Block Store (Amazon EBS)

Reported Date: 2010-11-01

Occurred Date: 2010-11-01

22. Dec 12, 2010

Amazon在欧洲的零售主站点(www DOT amazon DOT com)宕机.

事故原因: EC2和EBS API服务出现异常的高错误率.

事故恢复:N/A

事故解释: 欧洲的数据中心的EC2 API发生了高错误率.

相关URL: <http://cloutage.org/incidents/429-amazon-amazon-com>

Summary: Amazon.com websites in Europe suffered an outage for more than half an hour due to a hardware failure in its European data center network.

According to internet monitoring firm Netcraft, Amazon's service health dashboard reported "elevated error rates and latencies for the EC2 APIs in the EU-WEST-1 region". Netcraft said many other sites may have been affected such as Amazon accounts for more than a third of all web-facing computers in Ireland.

Number Affected: Unknown

Organization: Amazon

- Affected Service: Amazon.com

Reported Date: 2010-12-12