Expanding the Cloud

Los Angeles  Hong Kong  Miami  Dallas  Seattle  St Louis  New York City  Frankfurt  Washington DC  San Francisco  Amsterdam  Dublin
Ahead in the Cloud
The power of Infrastructure as a Service

Dr. Werner Vogels
CTO, Amazon.com
It’s automatic.

It’s completely customized to your music.

Welcome to the end of slideshows.

No two videos are ever the same.

1. It analyzes your images
2. It feels your music
3. It customizes a video

GET STARTED
create a new video

LEARN MORE
watch the 60-sec video
Animoto: EC2 Instance Usage
AWS Registered Developers

- Q1 2006: 160,000
- Q1 2007: 240,000
- Q1 2008: 370,000
- Q2 2008: 400,000
“…. Amazon’s real business down the line will be its cloud services. Amazon will be like a book store that sells cocaine out the back door. Books will be just a front to sell storage and cloud computing.”
Amazon’s History in 30 Seconds

- Transformations
  - From single seller to 1M+ sellers
  - From technology consumer to technology provider
  - From single application to platform
  - From web site & database to a massively distributed system
  - From web site to web services
  - From enterprise scale to web scale
Software As Bits

Develop → Test → Release → Install → Configure → Operate

Develop → Test → Operate

http://www....

Software As A Service
Develop → Test → Operate
Undifferentiated heavy lifting

- Hardware costs
- Software costs
- Maintenance
- Load balancing
- Scaling
- Utilization
- Idle machines
- Bandwidth management
- Server hosting
- Storage Management
- High availability
The 70/30 Switch

30% of time, energy and dollars on differentiated value creation

70% of time, energy and dollars on undifferentiated heavy lifting
brb

Blackout!
Our power is down. Technorati will be back up soon.

Error
Craigslist and many other sites are having issues at the colo facility.
Please sit tight, and try again later.
We are aware of the situation, and the happy craigslist elves are scurrying to make it better.

Yelp is currently down for maintenance.

This blog is temporarily unavailable because of system maintenance.
We expect to be back online soon.
Thank you for your patience.
-- USATODAY.com Managing Editor Chet Czarniak
Figure 2: Annualized failure rates broken down by age groups.
AMS-IX Traffic Statistics

Daily graph

- **Peak In**: 528.748 Gb/s
- **Peak Out**: 528.228 Gb/s
- **Average In**: 355.503 Gb/s
- **Average Out**: 355.157 Gb/s
- **Current In**: 318.345 Gb/s
- **Current Out**: 318.395 Gb/s

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Dream or Nightmare?
Web-scale Computing

Scalable Infrastructure that allows applications to meet infinite demand, cheaply and reliably
Getting Real

Discover the smarter, faster, easier way to build a successful web-based application. A book by 37signals.

“Every once in a while, a book comes out of left field that changes just about everything. This is one of those books. Ignore it at your peril.”

-Seth Godin

More reviews and buzz

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Amazon Infrastructure Services

**Scalable**
- Increase or decrease capacity in minutes

**Cost-Effective**
- Low rate, pay-as-you-go

**Reliable**
- Amazon’s proven infrastructure

**Secure**
- Multilayer security facilities
600 TB of pictures stored in Amazon S3
Billions of Objects in Amazon S3

---|---|---|---|---|---|---
1 | 1 | 4 | 14 | 18 | 23 | 29
SmugVault

Your SmugVault is ready!

Just click the Add Files button, above right, to get started.

(The Add Photos button on your site will also add all file types to your SmugVault.)

SmugVault help.
Security
Scalability
Availability
Performance
Cost-effectiveness
Security
Scalability
Availability
Performance
Cost-effectiveness
Lower Cost Structure → Selection → Growth → Traffic → Sellers → Lower Prices → Customer Experience
Incremental Scalability is Key
Incremental Scalability

- Service can be scaled up/down one node at a time.
- *Elastic*: capable of growing and shrinking on demand.
- Minimal disruption to customer performance.
- Common, fully automated operation.
- Addresses:
  - Different growth paths
  - Fault-tolerance
  - Heterogeneity
  - Operational efficiency
Security
Scalability
Availability
Performance
Cost-effectiveness
Everything fails, All the Time
Failures are Highly Correlated

Systems do not Fail by Stopping
Security
Scalability
Availability
Performance
Cost-effectiveness
Engineering for Performance at 99.9%
Security
Scalability
Availability
Performance
Cost-effectiveness
Addressing Uncertainty

- Acquire resources on demand
- Release resources when no longer needed
- Pay for what you use
- Leverage other’s core competencies
- Turn fixed cost into variable
Welcome. TimesMachine can take you back to any issue from Volume 1, Number 1 of The New-York Daily Times, on September 18, 1851, through The New York Times of December 30, 1922. Choose a date in history and flip electronically through the pages, displayed with their original look and feel.

TUESDAY
APRIL 16, 1912
The Titanic Sinks

MONDAY
NOVEMBER 11, 1918
World War I Ends

TUESDAY
JUNE 23, 1908
100 Years Ago Today
“In a recent test, the Defense Information Systems Agency compared the cost of developing a simple application called the Tech Early Bird on $30,000 worth of in-house servers and software with the costs of developing the same application using the Amazon Elastic Compute Cloud from Amazon.com’s Web Services. Amazon charged 10 cents an hour for the service, and DISA paid a total of $5 to develop an application that matched the performance of the in-house application.”
How is AWS helping Media Companies their content?
Rapid Course Development

Be a training expert, not a webmaster

For most organizations, training is a never-ending process. Until now, access to training has been expensive and time-consuming. DigitalChalk revolutionizes training delivery by enabling you to create and deliver high-quality multimedia training courses on the Web - quickly and cost-effectively.

how to BUY steps to join DigitalChalk
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Capital Expense

Variable Cost