



Cloud Computing för arkitekter

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IASA och Sundblad & Sundblad

ITARC 2009
ARKITEKTURER I MOLNET
12 MARS 2009, STOCKHOLM

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Är Cloud Computing intressant?

40 % tillväxt globalt 2009.
Blir likadant i Sverige!

Computer Sweden/IDC 2009-03-06

USA 2008
23 % av företagen lägger minst 25 % av
IT-budgeten på applikationer i molnet.

Computer Sweden/IDC 2009-03-06

USA 2010
Andelen stiger till 45 %.
(Oklart vilken andel!).

Computer Sweden/IDC 2009-03-06

USA 2009
76 % av alla organisationer och företag
kommer att använda minst en SaaS-
baserad applikation

Computer Sweden/IDC 2009-03-06

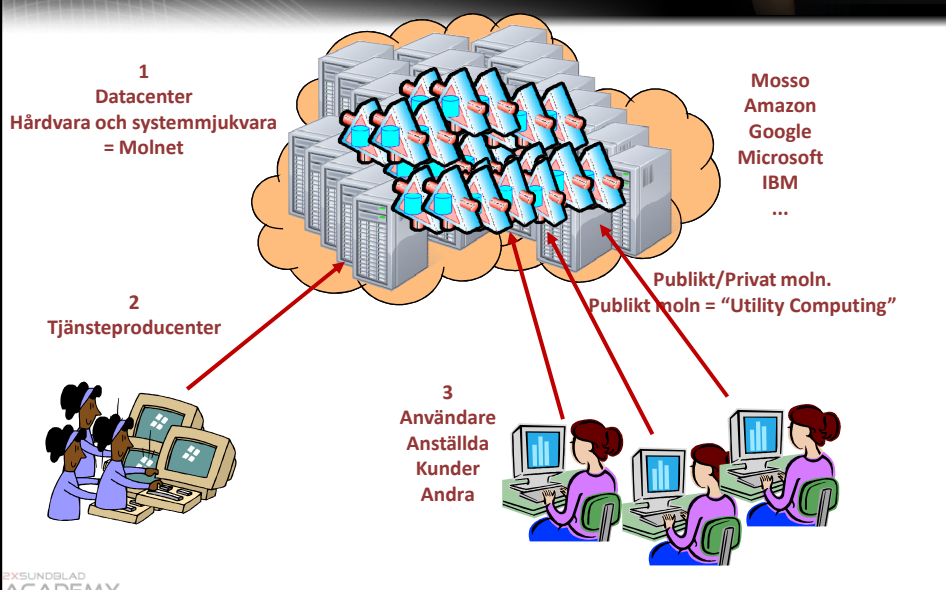
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Cloud Computing – vad är det?

- Virtualisering på stereoider
 - Hundratusentals fysiska servrar
 - Allting virtualiserat
 - Nästan obegränsad skalbarhet
- Software as a Service på stereoider
 - Flexibel tillgång till de resurser som behövs för ögonblicket
- IT som en allmänt tillgänglig tjänst
 - "Software as a utility"
 - Jämför med tillgång till elektricitet
- Betala för vad du använder
 - Inte mindre – inte mer
 - Blixtsnabb utökning/nedminskning av kapacitet

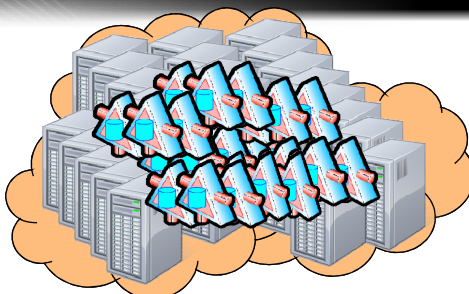
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Tre aktörsroller



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Software as a Service (SaaS)



UC Berkeley:

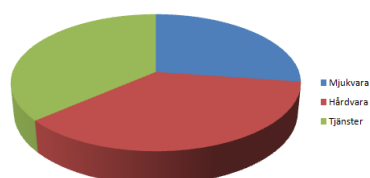
Cloud Computing är summan av SaaS och "Utility Computing" men inkluderar *inte* privata moln.

Min översättning

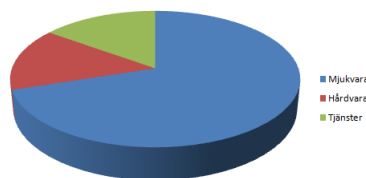
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SaaS – definition?

- "Software deployed as a hosted service and accessed over the Internet"
 - "Line-of-business services"
 - "Consumer-oriented services"



Traditionell kostnadsbild



Kostnadsbild vid SaaS

(Kostnad för SaaS-leverantörens hårdvara och tjänster ingår i "Software" men bör bli lägre än om egen hårdvara används.)

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Tre nya aspekter ur ett hårdvaruperspektiv – UC Berkeley igen (min översättning)

“Illusionen av obegränsade resurser för databehandling, tillgängliga när de behövs, vilket eliminerar behovet för användare av Cloud Computing att planera i förväg för tillgång till sådana resurser.”

“Eliminering av behovet för molnanvändare att tidigt binda upp sig för hårdvaruresurser, vilket gör det möjligt för företag att starta i liten skala och utöka hårdvaran först när det behövs.”

“Möjligheten att betala för användning av databehandlingsresurser endast när de behövs (t.ex. processorer per timme och datalagring per dygn) och att frigöra dem när de inte behövs längre. Detta medför besparingar eftersom man kan släppa maskiner och lagringsutrymme när de inte längre gör nytta.”

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Grant Thorntons val (Computer Sweden 2009-03-06)

The screenshot shows the Fortnox website interface. At the top, there's a navigation bar with links like 'OM FORTNOX', 'PRODUKTER', 'BESTÄLL', 'PARTNERS', 'INVESTERARE', 'PRESS', and 'IN ENGLISH'. Below this, there's a 'Starta' button and a search bar. The main content area is titled 'Beställ' and features a grid of product cards. Each card includes an icon, a title, a description, and pricing information. The products listed are: Bokförling (89:-/månad), Fakturering (89:-/månad), Tidredovisning (89:-/månad), and Arkivplats (49:-/månad). There are also links to 'PRENUMERERA PÅ VÅRT NYHETSBREV' and 'ANMÄL DIG HÄR'. On the right side, there's a 'PRESSMEDDELANDEN' section with recent news items and a 'REFERENSER' section with a link to 'BDO Nordic'.

“Vi använder Fortnox för att kunna dela information och redovisning med våra kunder. Mjukvara som tjänst är på god väg att bli ett tillräckligt moget alternativ för oss”, säger Peter Bodin, vd på Grant Thornton.

Vår tolkning:

- Software as a Service? JA!
- Cloud Computing? NEJ!

http://www.fortnox.se/best_ordf_1.php

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Salesforce

salesforce.com
Success. Not Software.

1-800-NO-SOFTWARE
1-800-444-4389

Applications Platform Services Customers Partners Events Company Foundation Customer Login International Sites

Sales Force Automation
Service & Support
Google
Marketing
Partner Networks
Content Management
Ideas
Analytics
Mobile
AppExchange Applications
Custom Applications
Editions and Pricing

“I can't imagine our business facing the next 12 months without Salesforce CRM.”
— John Cloyd, CTO, Vistage International

It's Time to Focus on Your Customers. And Your Budget.
Salesforce CRM Makes It Possible to Do Both

To steer your company through these turbulent times, it's more important than ever to be on top of every lead, every opportunity, and every customer interaction. Without a big up-front software investment that's expensive to install and maintain.

With Salesforce CRM and our cloud computing model, you can mind your customers and your budget at the same time.

Get up and running in 30 days with the world's most proven and loved customer relationship management solution. With our pay-as-you-go model, the price of success is dramatically lower. And say goodbye to complexity, too. Salesforce.com handles the heavy lifting of maintenance and upgrades.

See what 55,400 companies have already discovered. Get started with your free CRM trial today.

SPECIAL OFFER
Get started with CRM
30-day free trial

VIEW DEMO
Watch a Salesforce CRM demo

9 KEY PLAYS FOR CRM SUCCESS
Download Whitepaper

Comprehensive On-Demand Business Software as a Service

Sales
Salesforce CRM SFA enables companies to drive sales productivity, increase visibility, and expand revenues with an affordable, easy-to-deploy service that delivers success to companies of all sizes.

Service & Support
The Salesforce solution for customer service gets companies up and running in a matter of weeks with a call center application that is loved by agents and a customer self-service application powered by Web 2.0 social networking.

Why Salesforce?

Awards
Winner! Industry watchers single out the CRM leader.

Platform
Force.com: The world's first multitenant, on-demand platform.

IT Resources
Making the case for on-demand with your CIO

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Salesforce Pricing

How Much Success Can You Handle?

Special Promotion
1 user: \$80/year
3 users: \$250/year
5 users: \$400/year

Group Edition Professional Edition Enterprise Edition Unlimited Edition

Editions and Pricing

Find the Perfect Match for Your Unique Business Needs
No matter what your CRM needs are, Salesforce.com has the perfect solution for you. Salesforce CRM is available in multiple editions starting at less than \$9 per user per month, with more advanced solutions starting as low as \$85 per user per month. The edition you need will depend on the size of your team and your customization and integration needs. It's easy to get started: Sign up for a FREE TRIAL, and when you're ready to purchase simply click the Subscribe Now button in your trial edition or call an account executive at 1-800-NO-SOFTWARE. Ready to buy today? Contact us and we'll set you up. **Based on a minimum annual commitment.

Salesforce CRM Unlimited Edition
Unlimited Power to Run CRM—and Your Entire Business
Salesforce CRM Unlimited Edition is the most powerful solution for maximizing CRM success and going well beyond to manage all your business functions as a service. Unlimited Edition boasts the most advanced customization capabilities, full development control for building custom applications, no limits on downloads from the Force.com AppExchange, premier support services, mobile access to Salesforce CRM, and more. Tell me more about Unlimited Edition CRM.

Salesforce CRM Enterprise Edition
Advanced CRM for Complex Enterprise Needs
Salesforce CRM Enterprise Edition includes the advanced customization, integration, logic, and workflow capabilities required to meet the unique needs of complex organizations. In addition to more advanced application and platform features, Enterprise Edition provides more power to extend your success beyond CRM with solutions from the Force.com AppExchange marketplace plus the ability to develop custom applications that run on Salesforce CRM. Tell me more about Enterprise Edition CRM.

Salesforce CRM Professional Edition
Complete CRM for Sales, Marketing, and Customer Service
Salesforce CRM Professional Edition gives you a complete view of your customers with industry-leading applications for core CRM functions. With more advanced sales and marketing features and added customer service functionality, Professional Edition helps busy professionals work as a unified team to grow your business and better serve your customers. Tell me more about Professional Edition CRM.

Salesforce CRM Group Edition
Complete CRM for Sales, Marketing, and Customer Service
Salesforce CRM Group Edition gives you a complete view of your customers with industry-leading applications for core CRM functions. With more advanced sales and marketing features and added customer service functionality, Professional Edition helps busy professionals work as a unified team to grow your business and better serve your customers. Tell me more about Professional Edition CRM.

SPECIAL OFFER
Get started with CRM
30-day free trial

FREE TRIAL
Salesforce CRM for 30 Days Plus a Free Book

EDITION FEATURE COMPARISON
Which is Right for You?

NEW TO CRM?
Learn and Get Started

Samuel RLM Software
Jeff Edwards
Director, Global Solution Partner Program & Operations

Evaluate
Professional Edition Video
+ 24h More Opportunities

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Microsoft Online Services Software + Services

Microsoft Online Services

Home Overview Solutions by Business Type Products How to Buy

Overview

Dynamic Hosted Solutions

- Combine the power of rich desktop-based applications with the flexibility of fully-hosted Internet services
- Experience an all-in-one integrated experience on the same rich clients your users already know
- Delivers a consistent look and feel from virtually any device, in almost any location
- Includes business-class e-mail, instant messaging, and the latest messaging and collaboration features

The Power of Choice with Software-plus-Services

- Choose to run some applications on-premises, or choose Online Services hosted and managed by Microsoft or Microsoft Partners
- Implement a flexible combination of on-premises, Microsoft hosted, and Partner-hosted solutions
- Adjust your deployment model dynamically as your business needs shift and grow
- Learn more about Software-plus-Services

Easy to Deploy, Easy to Manage

- Provide the tools your organization needs and quickly and easily extend new capabilities to your organization without straining internal resources
- Microsoft Online Services synchronize with your Microsoft Active Directory, so you maintain control and can continue to manage user policies centrally
- Single administrative panel enables simple and centralized provisioning and management of new and existing users

“Genom att kombinera det bästa av mjukvara på egna maskiner med det bästa av molnbaserade tjänster kan vi leverera mer tilltalande IT-lösningar både för konsumenter, utvecklare och företag”

Ray Ozzie

Chief Software Architect Microsoft

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Min översättning

Mer om Microsoft Online Services

Microsoft Exchange Online

Microsoft SharePoint Online

Microsoft Office Communications Online

Microsoft Office Live Meeting

Visit www.microsoft.com/online today and start putting our IT resources to work for you!

Microsoft Online Services

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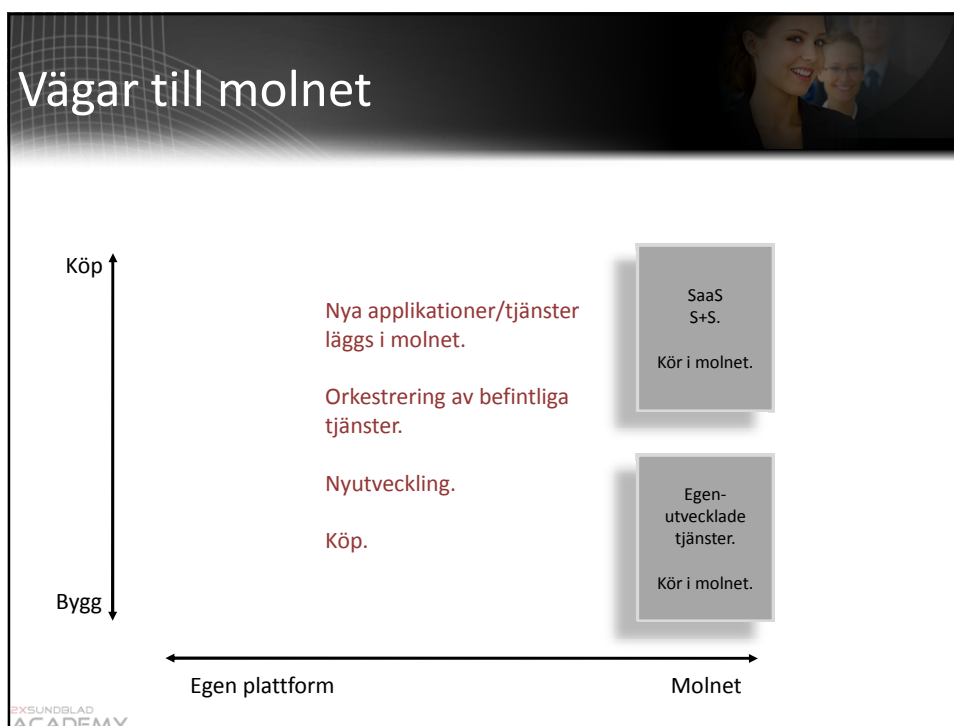
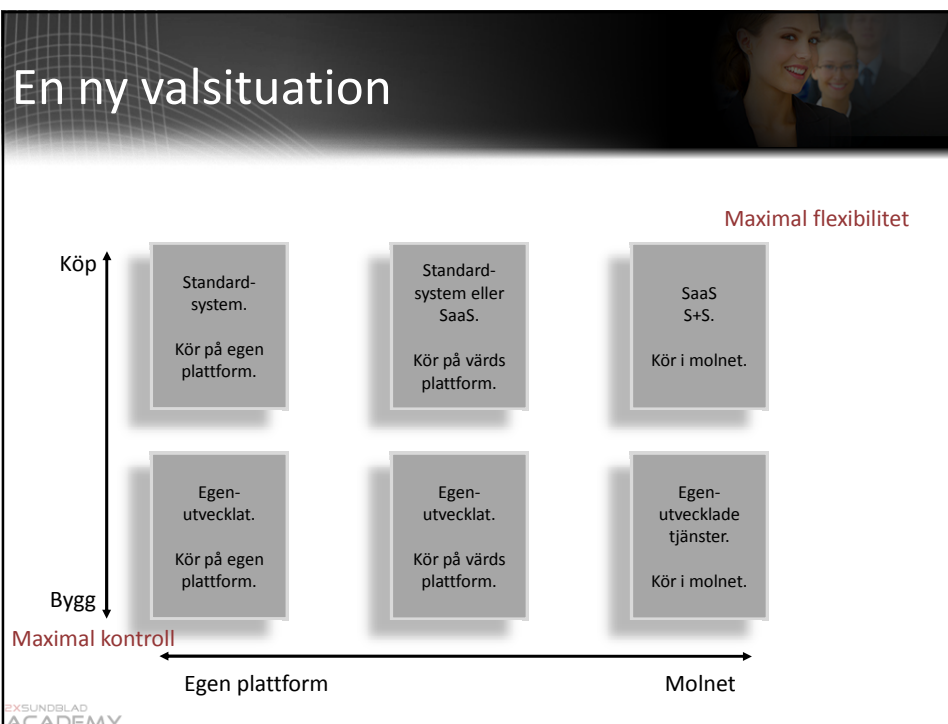
Calculate estimated cost

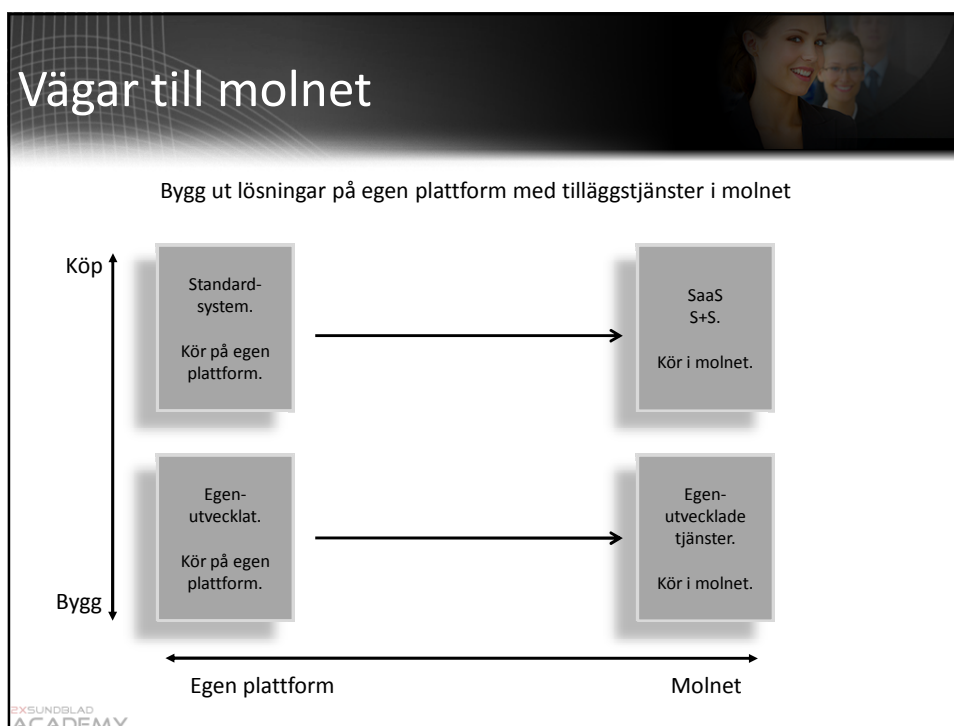
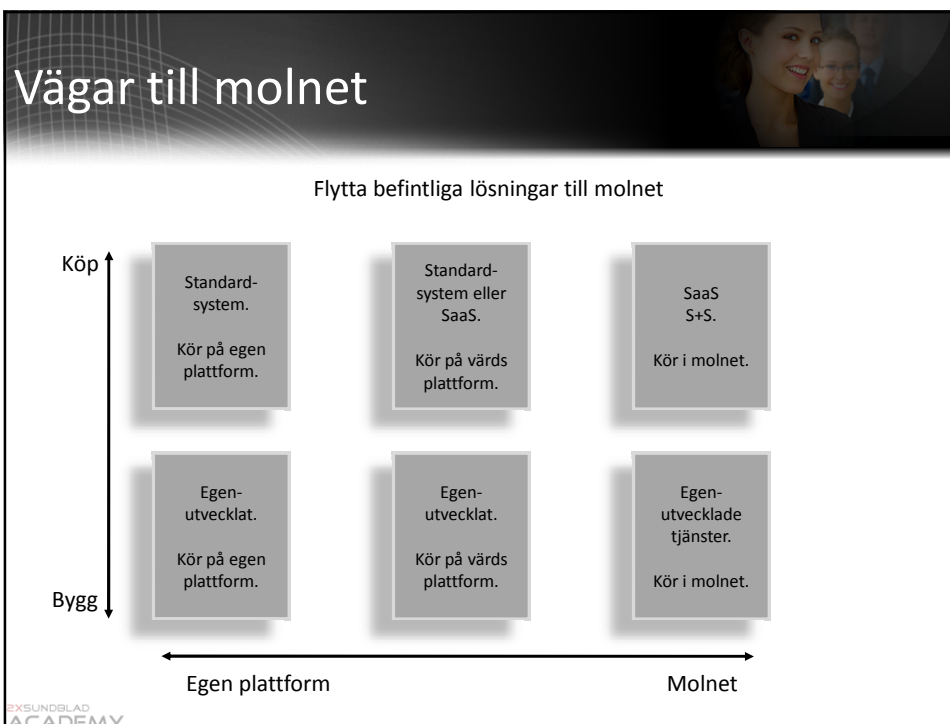
Learn more about purchasing

Dessutom:

- Windows Azure
- Compute Services
- Storage Services
- Service Bus
- Workflow Services
- SQL Services
- m.m.

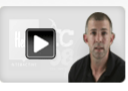
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Vad som behövs, när det behövs

“



We saw a traffic spike of over 500% from the previous day. Mosso's platform allowed us to handle these spikes seamlessly. We did not have to worry about adding servers, load balancing, it was just done.”

Michael Wilhite, President, www.hellointeractivedesign.com

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Prisexempel Mosso

Need dedicated hardware? go.to/rackspace.com

MOSSO
the rackspace cloud

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Deploy and Scale Websites, Servers and Storage in Minutes.

Mosso is a company where everything is fast: you'll get started in minutes, scale up before your traffic does, and get expert support in about two phone rings.

Cloud hosting? That means you don't fight with any hardware—ever—because advanced technology provides you with room (and power) to spare. Isn't that how hosting should be?

our suite of products

CLOUD SITES™	CLOUD FILES™	CLOUD SERVERS™
• Unlimited sites, databases and email • Full scalability without input • Instant support from real people	• Unlimited, inexpensive web storage • Fast file serving powered by Limelight • Instant support from real people	• On-demand server instances • Complete flexibility and control • Your choice of Linux distribution
\$100.00 /Month (starting)	15¢ /Gigabyte (starting)	\$20 /Month (starting)
Buy Now Learn More	Buy Now Learn More	Learn More

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Pris per timme (Amazon) Amazon EC2 (Elastic Compute Cloud)

Pricing

Pay only for what you use. There is no minimum fee. Estimate your monthly bill using [AWS Simple Monthly Calculator](#).

Instances

United States Europe

Standard Instances	Linux/UNIX	Windows
Small (Default)	\$0.11 per hour	\$0.135 per hour
Large	\$0.44 per hour	\$0.54 per hour
Extra Large	\$0.88 per hour	\$1.08 per hour

High CPU Instances	Linux/UNIX	Windows
Medium	\$0.22 per hour	\$0.32 per hour
Extra Large	\$0.88 per hour	\$1.28 per hour

Pricing is per instance-hour consumed for each instance type, from the time an instance is launched until it is terminated. Each partial instance-hour consumed will be billed as a full hour.

For more information on Windows options including Windows with Authentication Services and Windows SQL Server, please [click here](#).

o.s.v.

32-bitars
1,7 GB minne
160 GB hårddisk
1 Compute Unit

64-bitars
7,5 GB minne
850 GB hårddisk
4 Compute Units

32-bitars
15 GB minne
1690 GB hårddisk
8 Compute Units

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Pris per överförd GB (Amazon) Amazon EC2 (Elastic Compute Cloud)

Pricing

Pay only for what you use. There is no minimum fee. Estimate your monthly bill using [AWS Simple Monthly Calculator](#).

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Standard Instances	Linux/UNIX	Windows
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o.s.v.

32-bitars
1,7 GB minne
160 GB hårddisk
1 Compute Unit

64-bitars
7,5 GB minne
850 GB hårddisk
4 Compute Units

32-bitars
15 GB minne
1690 GB hårddisk
8 Compute Units

Data Transfer

Internet Data Transfer

The pricing below is based on data transferred "in" and "out" of Amazon EC2.

Data Transfer In	
All Data Transfer	\$0.10 per GB

Data Transfer Out	
First 10 TB per Month	\$0.17 per GB
Next 40 TB per Month	\$0.13 per GB
Next 100TB per Month	\$0.11 per GB
Over 150 TB per Month	\$0.10 per GB

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Google App Engine

What Is Google App Engine?

Google App Engine lets you run your web applications on Google's infrastructure. App Engine applications are easy to build, easy to maintain, and easy to scale as your traffic and data storage needs grow. With App Engine, there are no servers to maintain. You just upload your application, and it's ready to serve your users.

You can serve your app using a free domain name on the appspot.com domain, or use Google Apps to serve it from your own domain. You can share your application with the world, or limit access to members of your organization.

With App Engine, you only pay for what you use. There are no set-up costs and no recurring fees. The resources your application uses, such as storage and bandwidth, are measured by the gigabyte, and billed at competitive rates. You control the maximum amounts of resources your app can consume, so it always stays within your budget.

App Engine costs nothing to get started. All applications can use up to 500 MB of storage and enough CPU and bandwidth to support an efficient app serving around 5 million page views a month, absolutely free. When you enable billing for your application, your free limits are raised, and you only pay for resources you use above the free levels.

Billable Quota Unit Cost

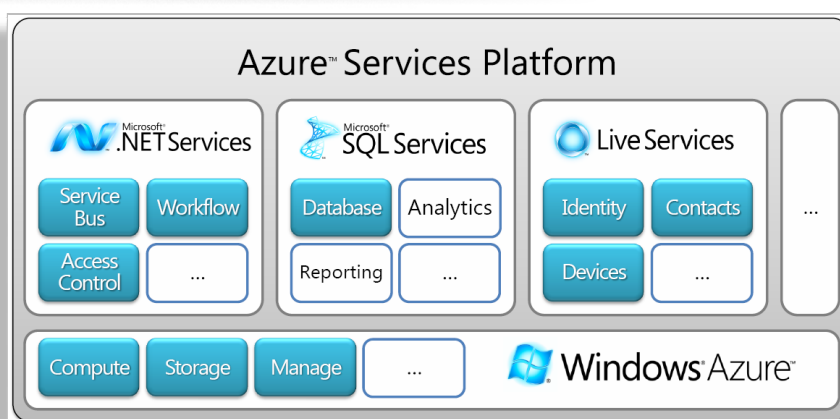
The cost for computing resources is as follows:

Resource	Unit	Unit cost
Outgoing Bandwidth	gigabytes	\$0.12
Incoming Bandwidth	gigabytes	\$0.10
CPU Time	CPU hours	\$0.10
Stored Data	gigabytes per month	\$0.15
Recipients Emailed	recipients	\$0.0001

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Windows Azure

Azure™ Services Platform

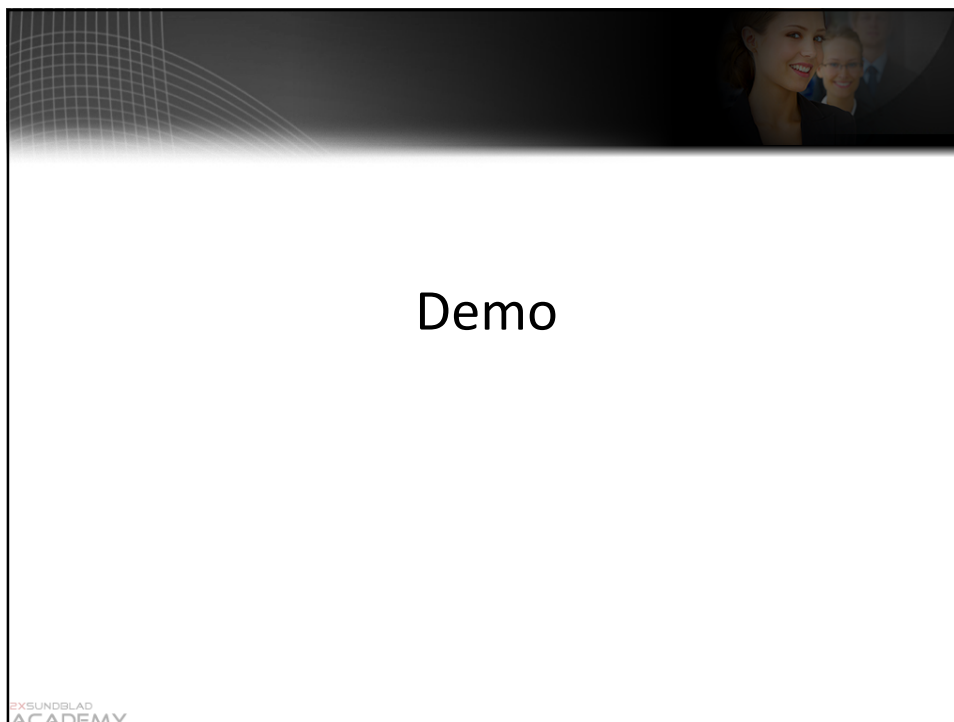


Ballmer: Azure ready for release by end of year

Källa: Computerworld 24 februari 2009

SDK tillgänglig nu

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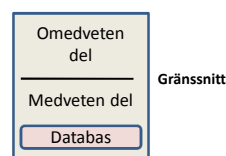
Några av mina slutsatser

- Meddelandeorienterad arkitektur
 - Assynkrona meddelanden
 - Service-orienterad teknik och arkitektur (SO och SOA)
 - Software as a Service (SaaS)
 - Software + Services
 - Informations/Entitetstjänster som bas
- Att fundera över:
 - Hur mycket skalbarhet behöver jag?
 - Hur "scale-aware" måste mina tjänster vara?

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När (obegränsad) skalbarhet behövs

- Dela tjänst i två delar:
 - en som är medveten om skalning
 - en som är omedveten om skalning
 - delar av tjänstinnehåll kan behöva flyttas
 - (A-D stannar kvar, E-H flyttar, I-Ö redan i andra tjänster)
- Minska transaktionsomfång
 - aldrig distribuerade transaktioner
 - endast inom samma "entitet" (som i databas kan vara uppdelad på flera tabeller)
 - acceptera osäkerhet och förskjutning av synkronisering
 - typiskt för REST
- Säkert en hel del annat också ...



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?

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Sundblad & Sundblad i Uppsala
<http://www.2xsundblad.com>

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