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PHP and Platform Independence in the Cloud

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September 3, 2009

Agenda

What is this Cloud Thing?

Why You Want to be in on It

Getting Your Money's Worth Out of It

Now You're Really Screwed

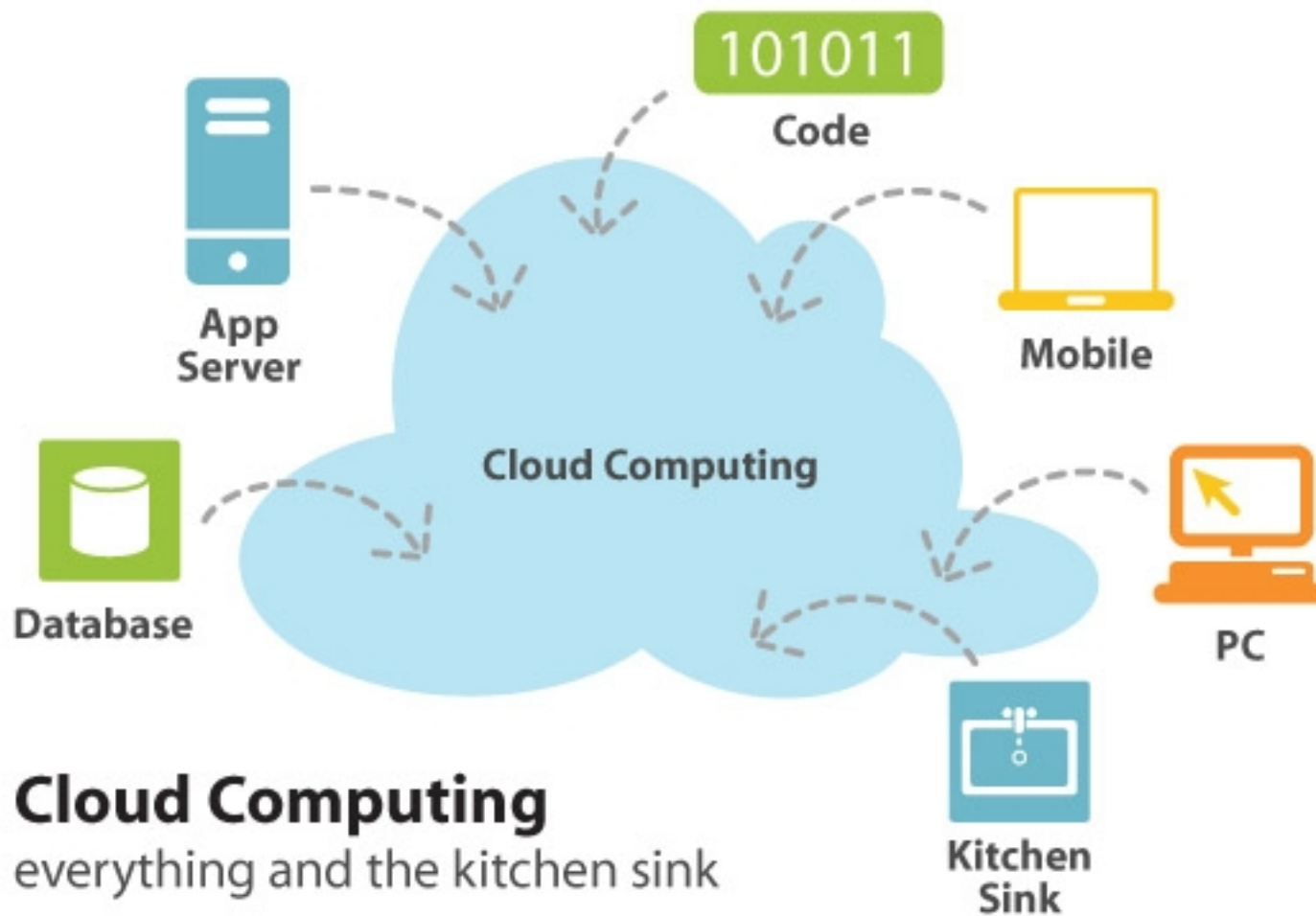Open Source Software to the Rescue!

Wasn't this Presentation Supposed to be about PHP?

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What is This Cloud Thing?

Cloud Computing
everything and the kitchen sink

The Holy Trinity

Infrastructure as a Service (IaaS) – Amazon Web Services, Rackspace Cloud Servers, GoGrid, etc.

Platform as a Service (PaaS) – Google App Engine, force.com, Rackspace Cloud Sites, SpringSource Cloud Foundry

Software as a Service (SaaS) – Salesforce.com, Lotus Live, Google Apps, <Insert Anything Here> On Demand

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Theological Questions

What is the difference between PaaS and IaaS + application services?

With so many interactive applications on the web, what qualifies some as Software as a Service?
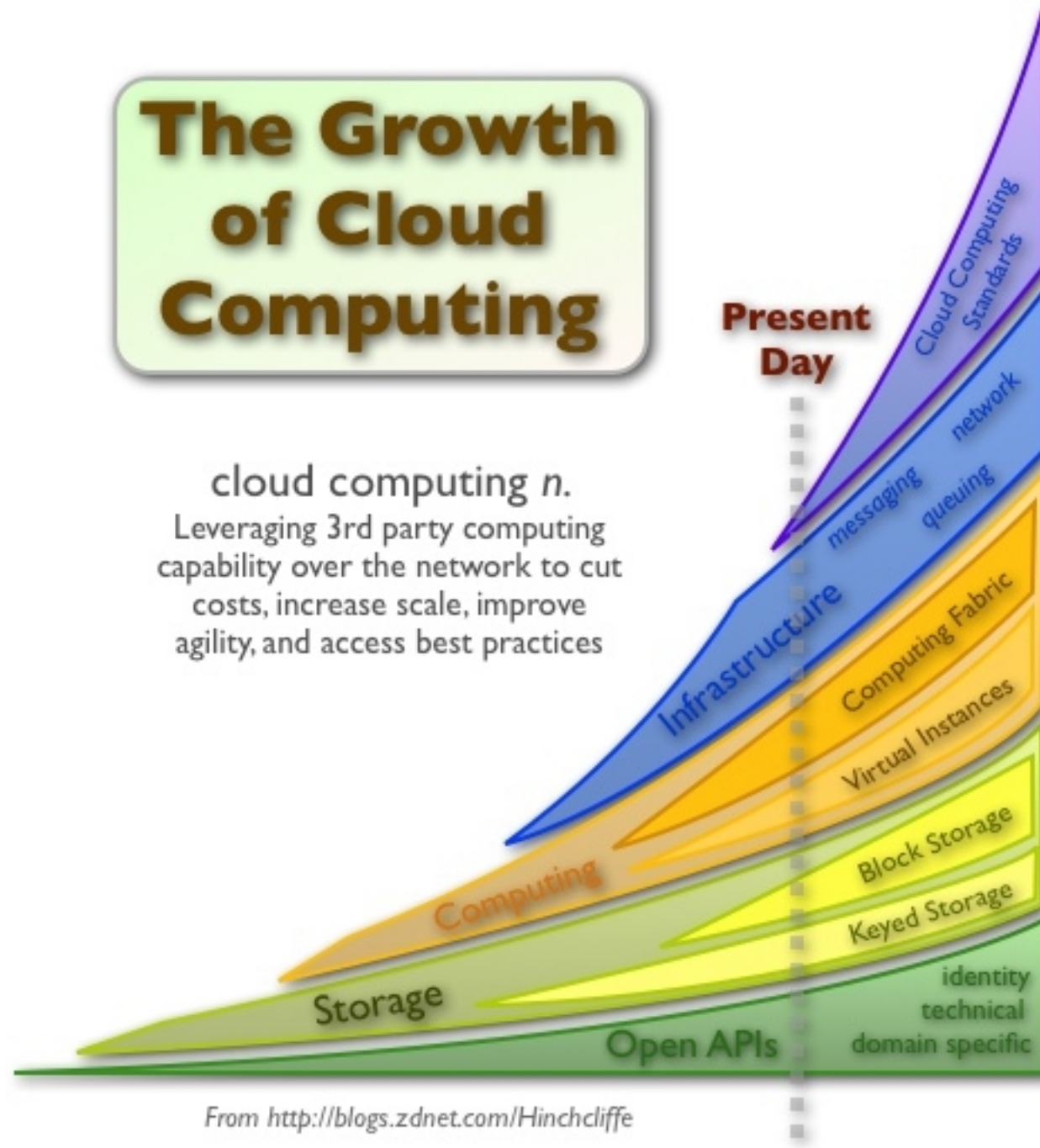
Is Windows Azure PaaS or IaaS?

If the Cloud loves us so much, why does it let bad things happen to good programmers?

The Growth of Cloud Computing

cloud computing *n.*
Leveraging 3rd party computing capability over the network to cut costs, increase scale, improve agility, and access best practices

Present Day

Cloud Computing Standards

messaging · queuing · network

Infrastructure

Computing Fabric · Virtual Instances

Computing

Block Storage · Keyed Storage

Storage

Open APIs

identity · technical · domain specific

From http://blogs.zdnet.com/Hinchcliffe

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Why You Want to be in on It

The Perks

Agility

Scalability

High Availability

Utility Pricing

Device Independence

Location Independence

Best Practices

Security

Everyone Else Seems to Think It's a Good Idea

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The Real Reason

Eventually, your boss will make you anyways.

Getting Your Money's Worth Out of It

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The Secret

Don't just deploy your application in the cloud. Write your application *for* the cloud!

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Current Application Services

File Storage – S3, Azure Blob Storage, Rackspace Cloud Files

Document Storage – SimpleDB, Azure Table Storage, Quickbase, Google Datastore

Queues – SQS, Azure Queue Storage, OnlineMQ

etc.

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Future Application Services

Authentication and Authorization

Session Management

Messaging

Scheduler

Search

Spam/Virus Detection

etc.

etc.

Applications Written for the Cloud are. . .

More Performant

More Scalable

Better Designed

More Secure

Less Expensive

(assuming you chose the right cloud provider)

Now You're Really Screwed

Or are you?

Yes. You are.

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Porting Your AWS Application to Azure

Change your signature algorithm

S3 Buckets » Azure Blob Storage Containers

S3 Objects » Azure Blobs

SQS REST-like Query API » Queue Storage REST API

SimpleDB » Azure Table Storage? Good luck with that.

Why Do These Clouds Have Different APIs in the First Place?

Historical Reasons

Vendor Innovation

Dunno

Porting Your Cloud Application

Let's Open Up a Can of Standards on these APIs!

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Let's not.

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Open Source Software to the Rescue!

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Standards vs. Open Source

Bring a lot of minds together to think about a problem	Brings a lot **more** minds together to think about a problem
Intelligent design	Survival of the smartest
Can stifle innovation	Encourages innovation
Slooooooooooooow	Slow
Can be abortive	Can be abortive
Unenforceable	Unenforceable

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Start with Something You Can Change

We can't change the server-side APIs, but we can change the client-side libraries.

# Build on What's Already There

Wave the Magic Wand of Abstraction

```php
interface Zend_Cloud_IQueue
{
    public function createQueue($name, $options = null);

    public function deleteQueue($name, $options = null);

    public function listQueues($options = null);

    public function fetchQueueMetadata($name, $options = null);

    public function storeQueueMetadata($metadata, $name, $options = null);

    public function sendMessage($message, $queueName, $options = null);

    public function recieveMessages($queueName, $max = 1, $options = null);

    public function deleteMessage($id, $queueName, $options = null);

    public function peekMessage($id, $queueName, $options = null);
}
```

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End Up with a Bunch of Methods Like These

```php
/**

 * Delete an item in the storage service.

 *

 * @param  string $path

 * @param  array $options

 * @return void

 */

public function deleteItem($path, $options = array()) {

    $this->_s3->removeObject($this->_getFullPath($path, $options));

}
```

Until You Have Something That's Useful

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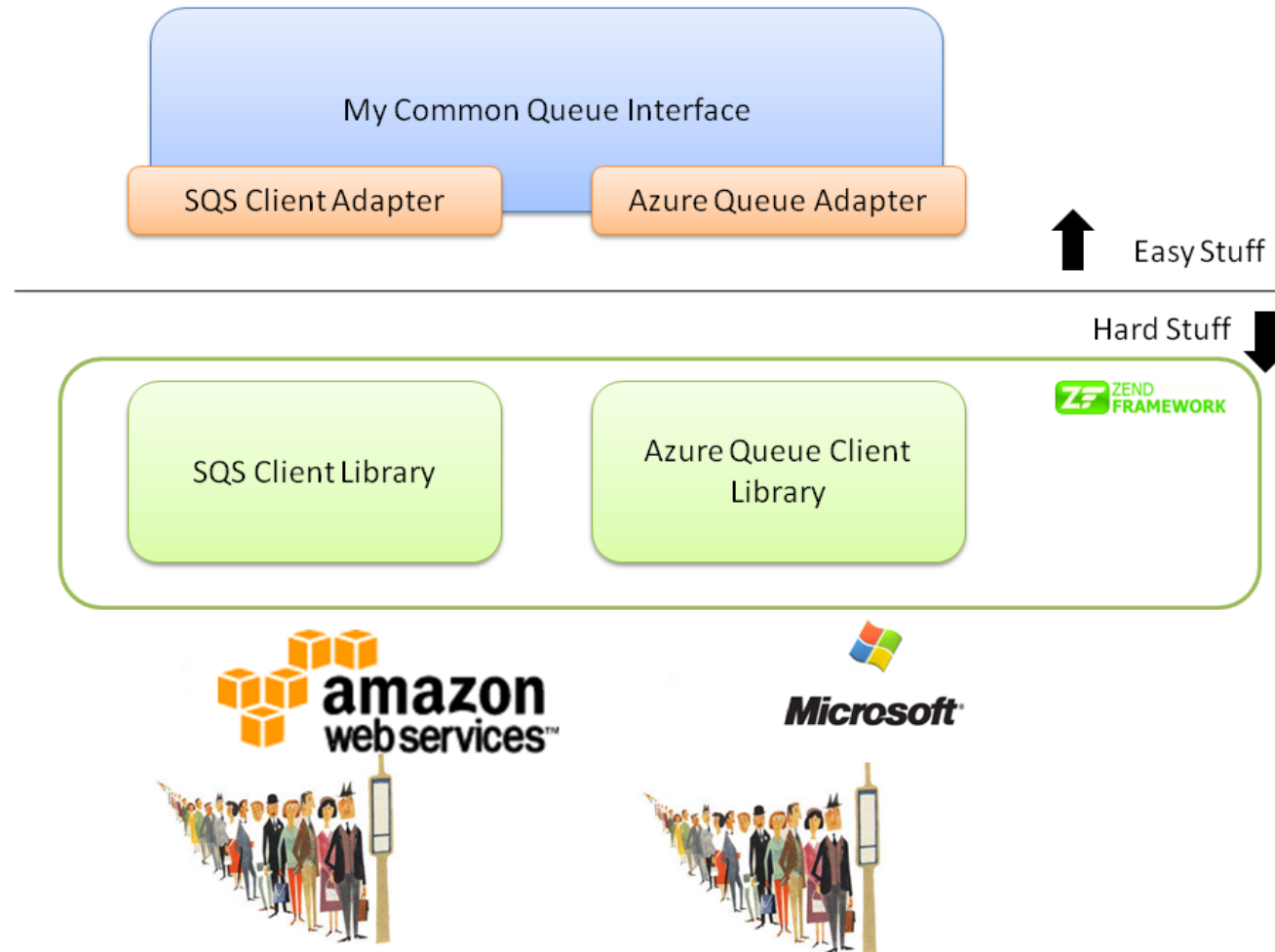
Repeat until you have something that's taken on a life of its own.

PHP·CLOUD | Many clouds. One API. No problem.

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QUESTIONS?

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