Windows Azure in de praktijk

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Agenda

- Wat is cloud
- Wat biedt Microsoft?
- Praktijk voorbeelden

Wat is cloud?

The Cloud Build Up: Findings From Gartner's Cloud Hype Cycle 2012

by Humayun on August 8, 2012

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echnology, Trends

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Majority of Americans believe bad weather affects cloud computing

By Shawn Knight
On August 30, 2012, 3:00 PM

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Cloud computing is a concept that many Americans have likely heard about and even use on a daily basis but according to a recent survey from Wakefield Research for Citrix, the majority of respondents have virtually no idea what it is.

About 29 percent of the 1,006 people polled thought cloud computing had to do with an actual cloud, the sky or something related to weather.

Furthermore, 51 percent of those surveyed believe bad weather would interfere with cloud computing while only 16 percent correctly understood the phrase

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- Home Net
- Data Reco

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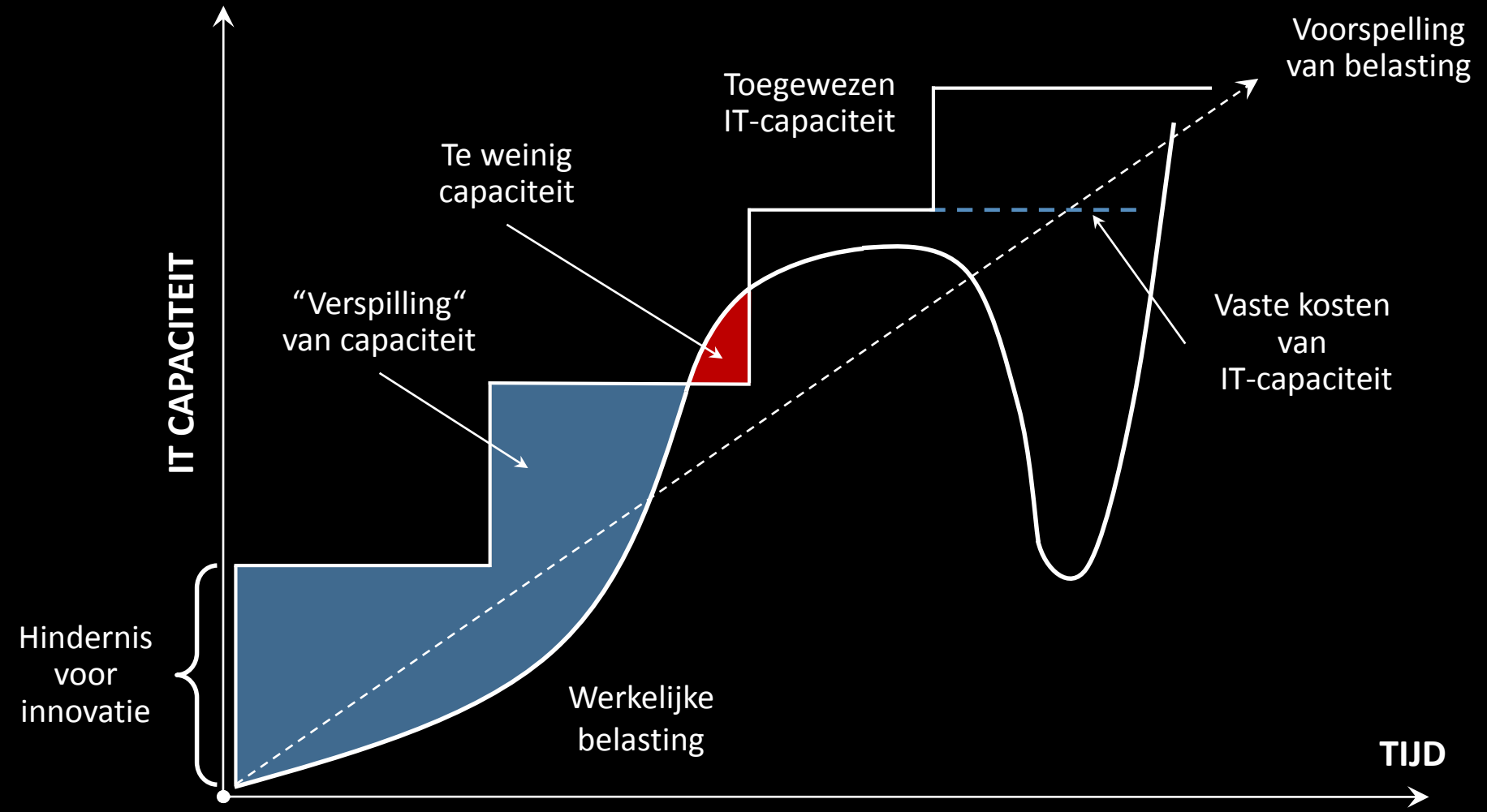
Definitie van cloud

Self service	• Klant verzorgt zijn eigen provisioning • Direct beschikbaar (geen 2 business dagen wachten)
Overal toegang	• Via het internet • Op allerlei type clients / devices
Locatie onafhankelijke resource pooling	• Multi tenant • Virtualisatie
Snelle elasticiteit	• Snel kunnen schalen • Oneindige capaciteit
Betaal voor gebruik	• Bedrag per dienst • Bedrag per transactie

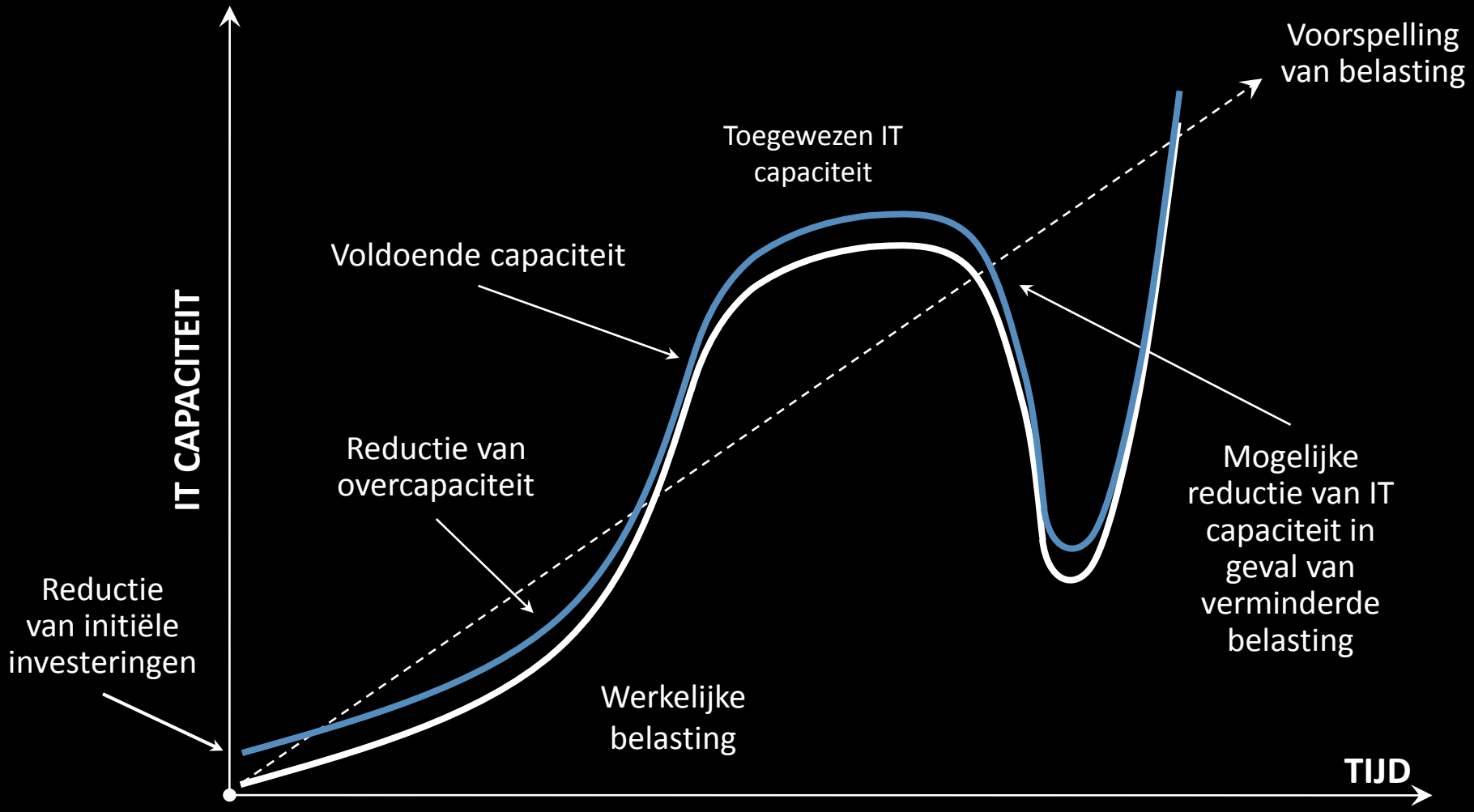
Waarom cloud?

Wat levert het op?

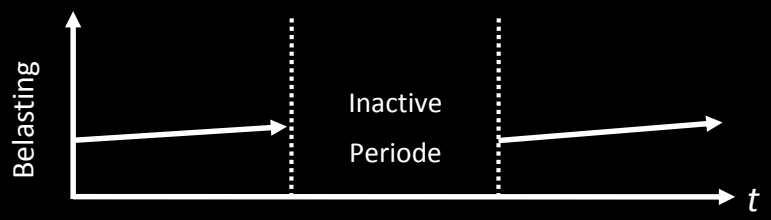
Traditioneel scenario



Cloud scenario

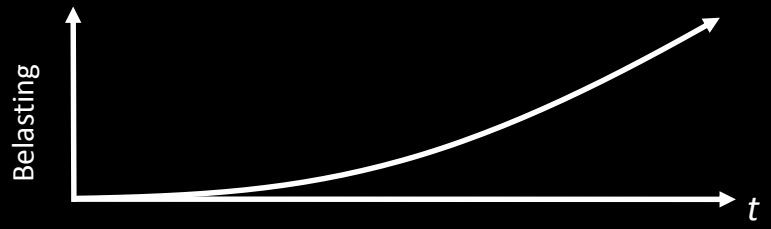


Cloud scenarios



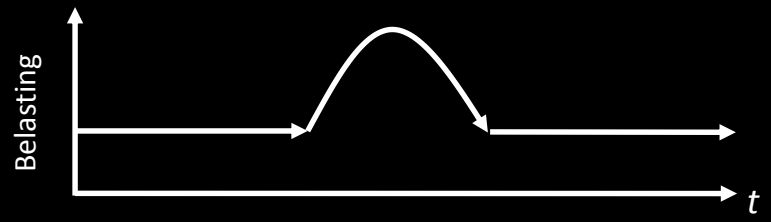
Aan en uit

On & off workloads (e.g. batch job)
Over provisioned capacity is wasted
Time to market can be cumbersome



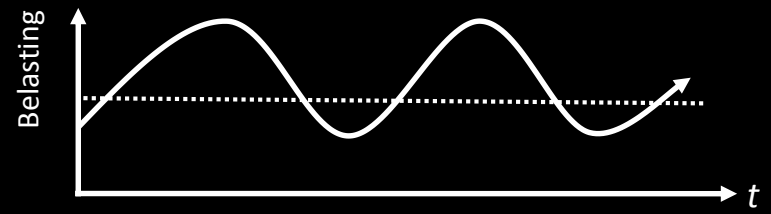
Snelle groei

Successful services needs to grow/scale
Keeping up with growth is a big IT challenge
Cannot provision hardware fast enough



Onvoorziene piek

Unexpected/unplanned peak in demand
Sudden spike impacts performance
Can't over provision for extreme cases



Voorspelbare pieken

Services with micro seasonality trends
Peaks due to periodic increased demand
IT complexity and wasted capacity

Cloud democratiseert

Scale

Reach

Velocity

"By 2020, more than **three-quarters** of the S&P 500 will be companies that we have not heard of yet."

- Professor Richard Foster, Yale University

Wat biedt Microsoft?

IaaS, PaaS, SaaS?

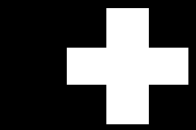
On Premises	Infrastructure (as a Service)	Platform (as a Service)	Software (as a Service)
Applications	Applications	Applications	Applications
Data	Data	Data	Data
Runtime	Runtime	Runtime	Runtime
Middleware	Middleware	Middleware	Middleware
O/S	O/S	O/S	O/S
Virtualization	Virtualization	Virtualization	Virtualization
Servers	Servers	Servers	Servers
Storage	Storage	Storage	Storage
Networking	Networking	Networking	Networking

You Manage

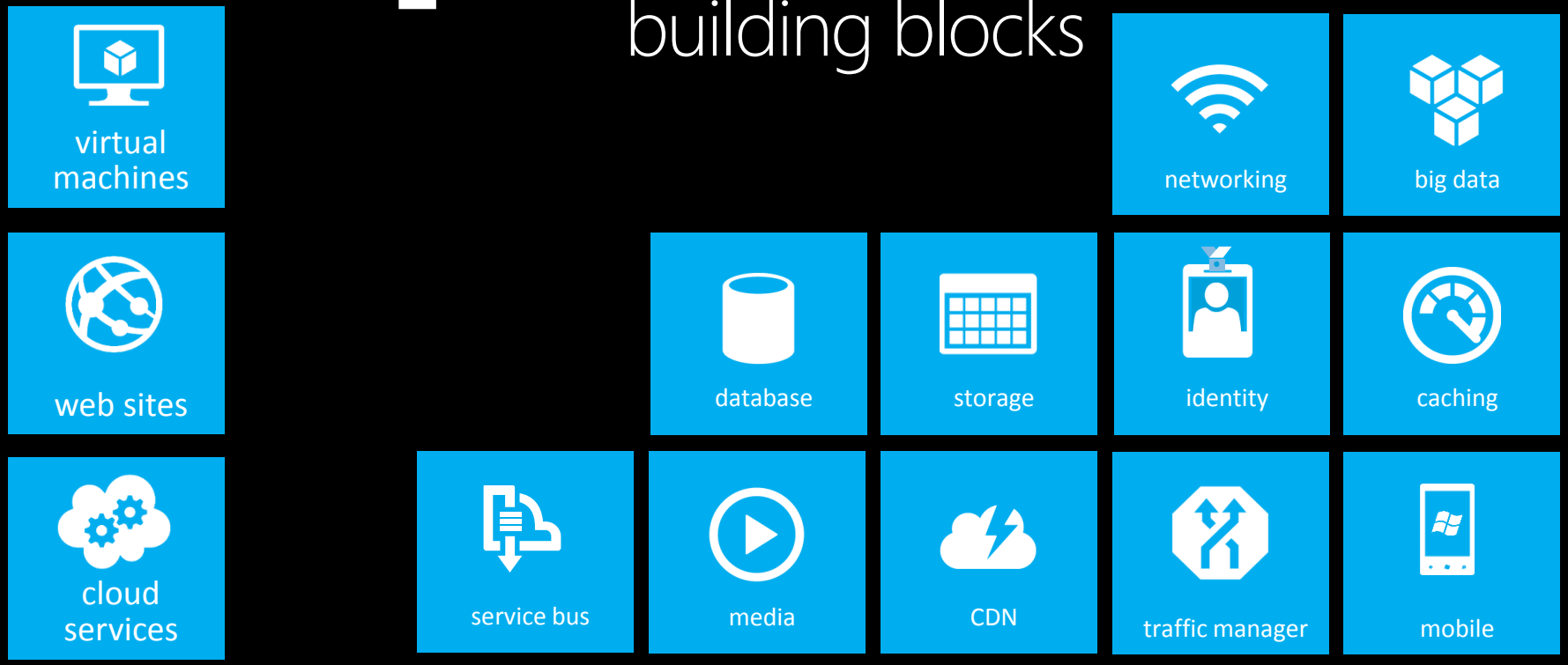
Vendor Manages

Windows Azure diensten

compute



application building blocks



Windows Azure

Microsoft .NET | Java | php | nodeJS

CDN | caching | integration | business analytics | identity & security | media | HPC | commerce

compute: cloud services | virtual machines | web sites

data management: SQL database | noSQL database | blob

networking: connect | virtual network | traffic manager

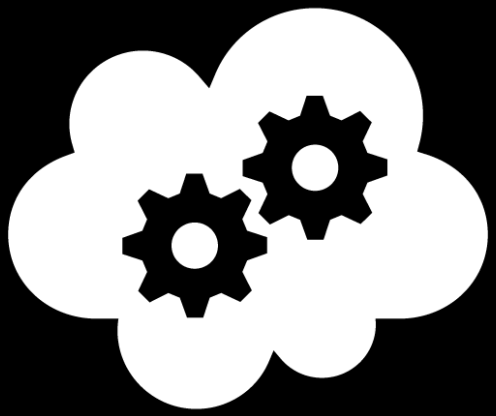
automated | managed resources

elastic | usage based

Global Physical Infrastructure

servers/network/datacenters

dev Net Noord



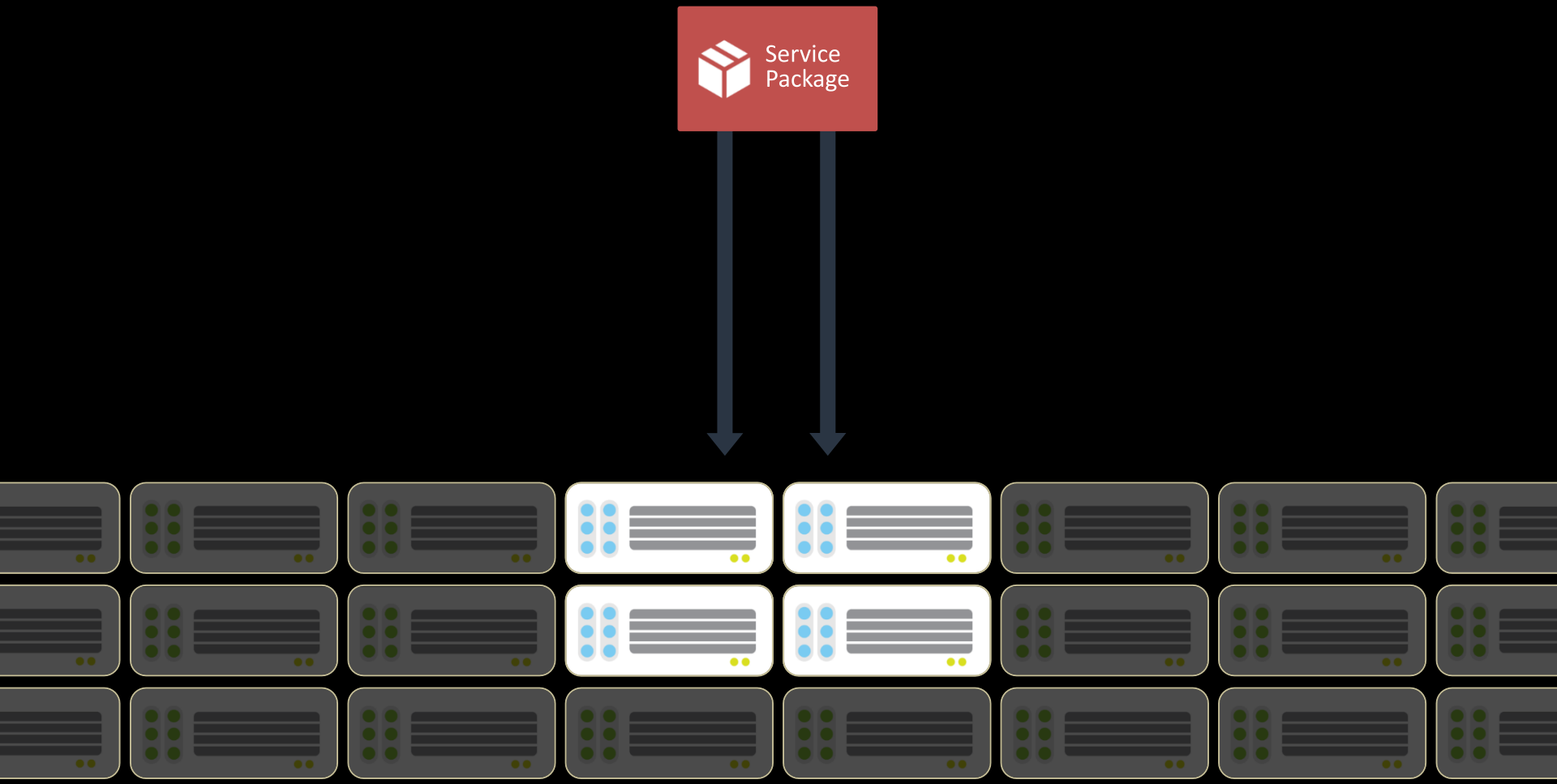
Cloud services

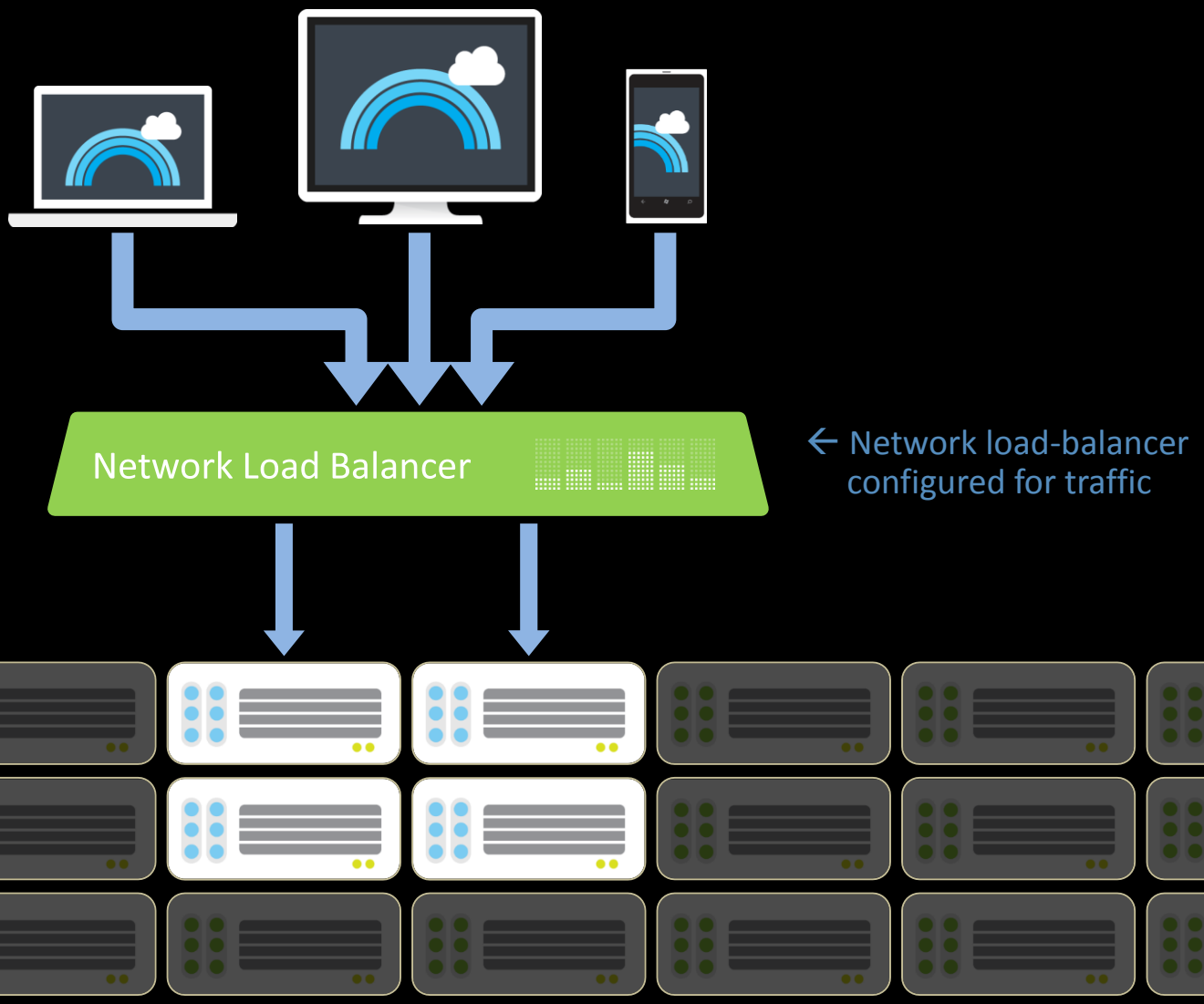
Installatie via packages

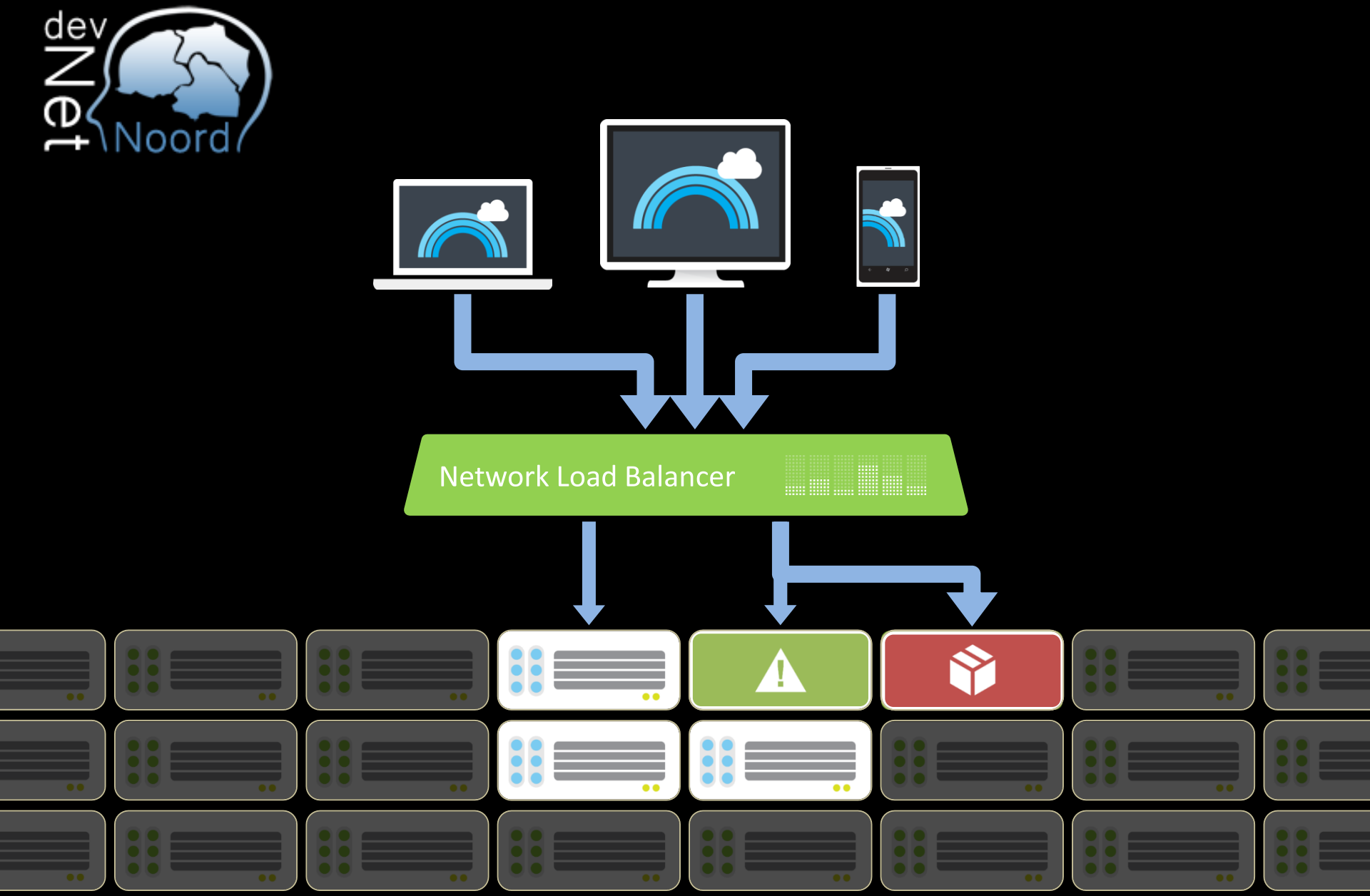
Ondersteuning voor multi tier applicaties

Automatische applicatie management

Geen state opslaan!


Service
Package


Network Load Balancer
← Network load-balancer configured for traffic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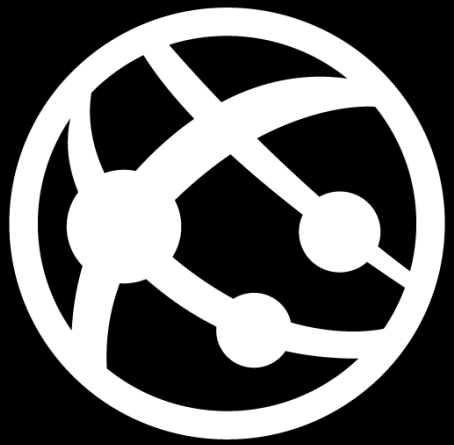
Network Load Balancer

dev Net Noord



Azure websites

Sandbox IIS omgeving

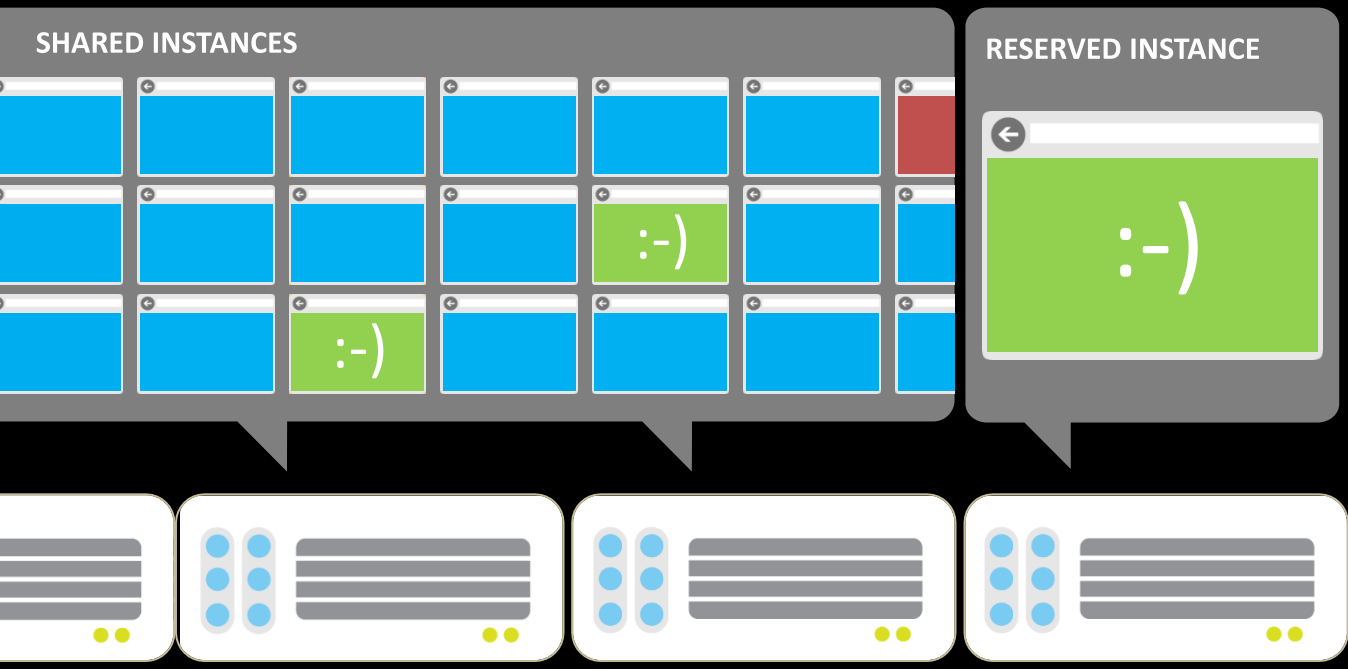
Bouwen met ASP.NET, Node.js of PHP

Snelle deployment via FTP, Git of TFS

Scale up / down in seconden

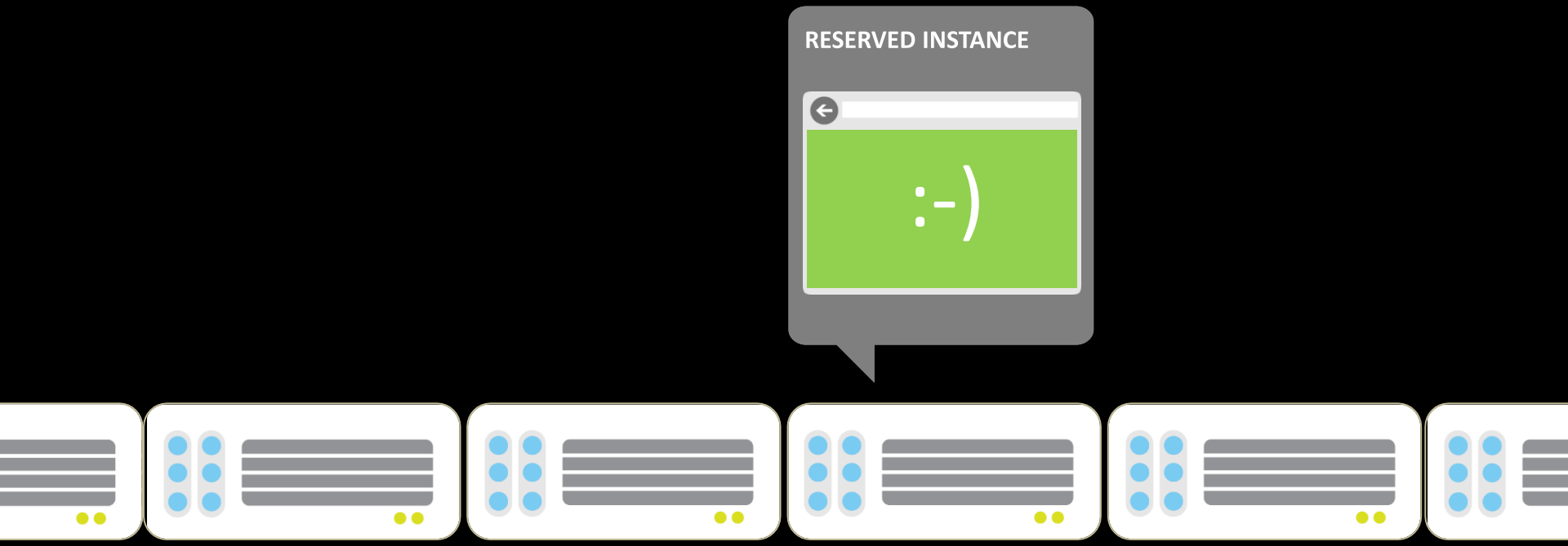
Nog in Preview (Geen SLA)

Azure websites



Azure websites

reserved 2



Cloud service vs. Azure websites

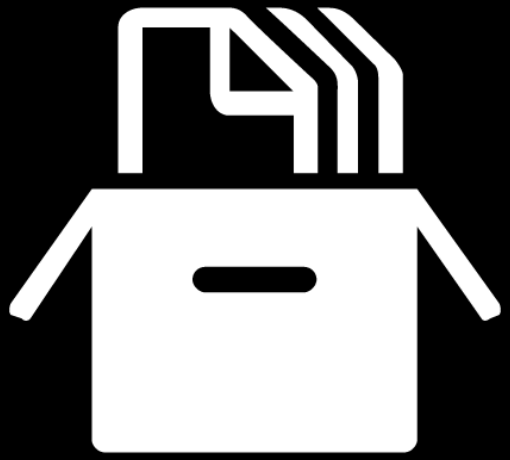
Cloud services

- Staging en production slot
- SSL support
- Startup tasks
- State gaat verloren

Azure websites

- Shared storage
- Eenvoudige deployment
- Geen installatie van componenten
- Nog in preview

dev Net Noord



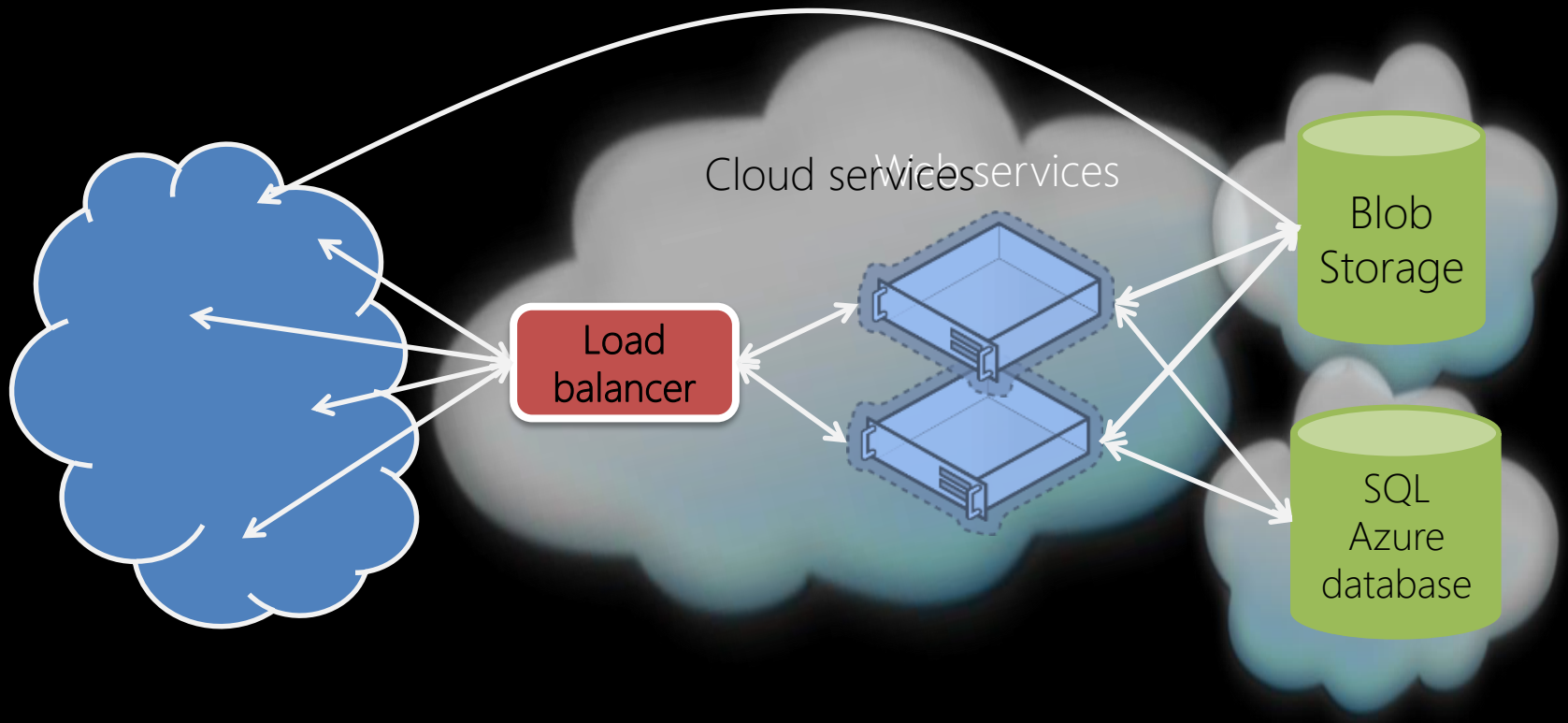
Praktijk .NET

Backend services (WCF)

Relationele database

Veel data en gegevensverkeer

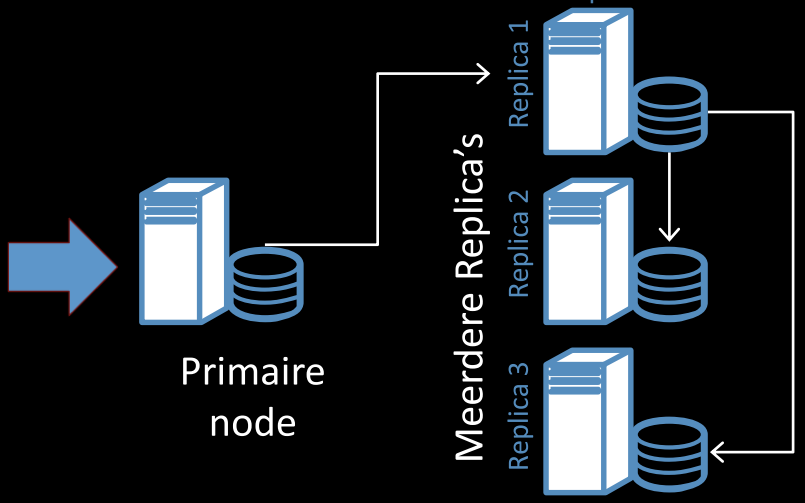
Praktijk voorbeeld



SQL Azure Database

Enkele logische database as a service

Meerdere fysieke replica's



Cloud relationele database op basis van SQL Server engine

Gebruik dezelfde tools, data access framework, T-SQL taal

Datacenters over de hele wereld

Hoge beschikbaarheid & Redundantie

- Lezen vindt plaats op de primaire node
- Schrijf acties worden gerepliceerd naar de replica's

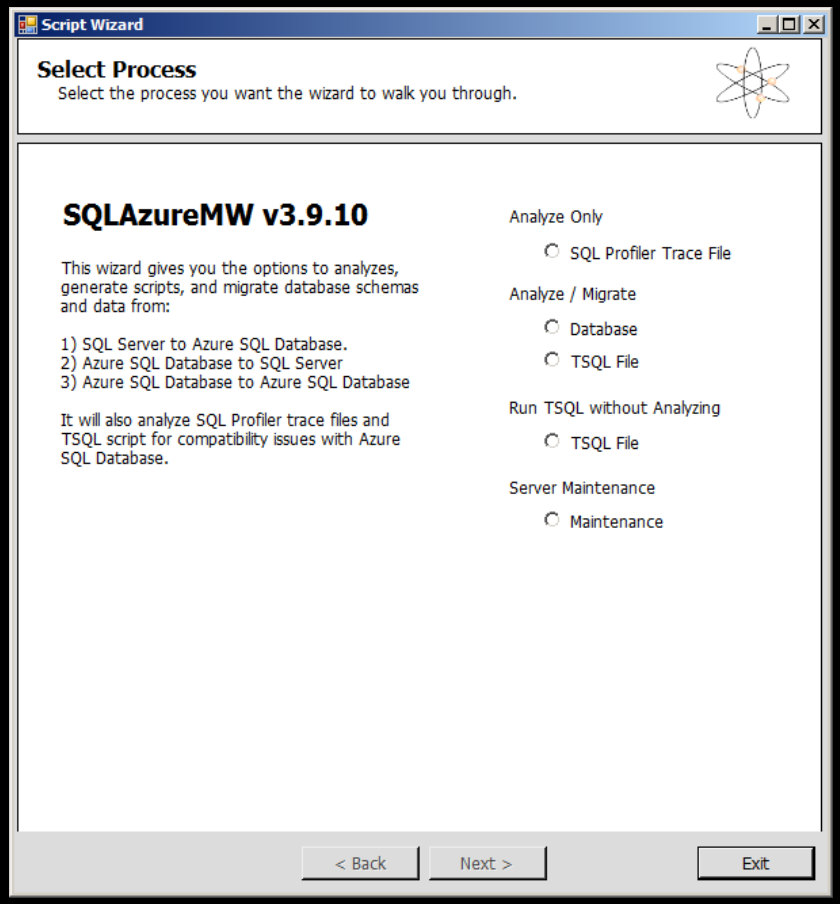
SQL Server != SQL Azure

- Niet ondersteund in Windows Azure SQL Database

SQL Server Agent	Integrated Full-Text Search
SQL Profiler	Common Language Runtime (CLR)
Service Broker	Filestream Data
Global Temporary Tables	Database Mirroring (T-SQL)

- Elke tabel verplicht een clustered index
- Backup en restore alleen via aparte API (Zelf bouwen)

SQL Azure Migration Wizard



http://sqlazuremw.codeplex.com/

Retry logic

- Zorg dat je code ook robuust is!
- Verbindingen naar SQL Azure, Service Bus en Storage Account kunnen mislukken
- Bij hoge load kun je *Transient Fault Errors* verwachten
- Gebruik het: *Transient Fault Handling Application Block*

Code sample (1/2)

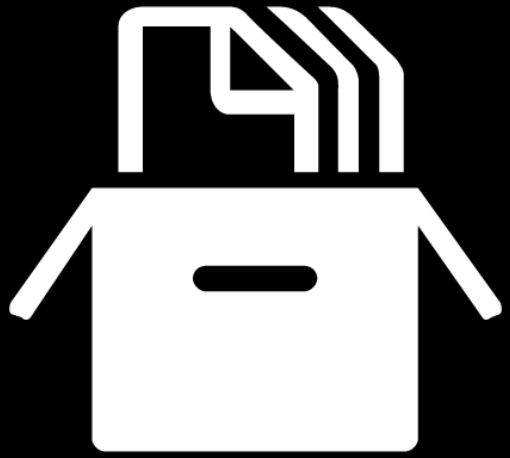
```
using Microsoft.Practices.TransientFaultHandling;
using Microsoft.Practices.EnterpriseLibrary.WindowsAzure.TransientFaultHandling;
...
// Define your retry strategy: retry 5 times, starting 1 second apart
// and adding 2 seconds to the interval each retry.
var retryStrategy = new Incremental(5, TimeSpan.FromSeconds(1),
   TimeSpan.FromSeconds(2));

// Define your retry policy using the retry strategy and the Windows
// Azure storage transient fault detection strategy.
var retryPolicy = new
   RetryPolicy<StorageTransientErrorDetectionStrategy>(retryStrategy);
```

Code sample (2/2)

```
try {
  // Do some work that may result in a transient fault.
  retryPolicy.ExecuteAction(
    () =>
    {
       // Call a method that uses Windows Azure storage and which may
       // throw a transient exception.
       this.queue.CreateIfNotExist();
    });
}
catch (Exception) {
  // All the retries failed.
}
```

dev Net Noord



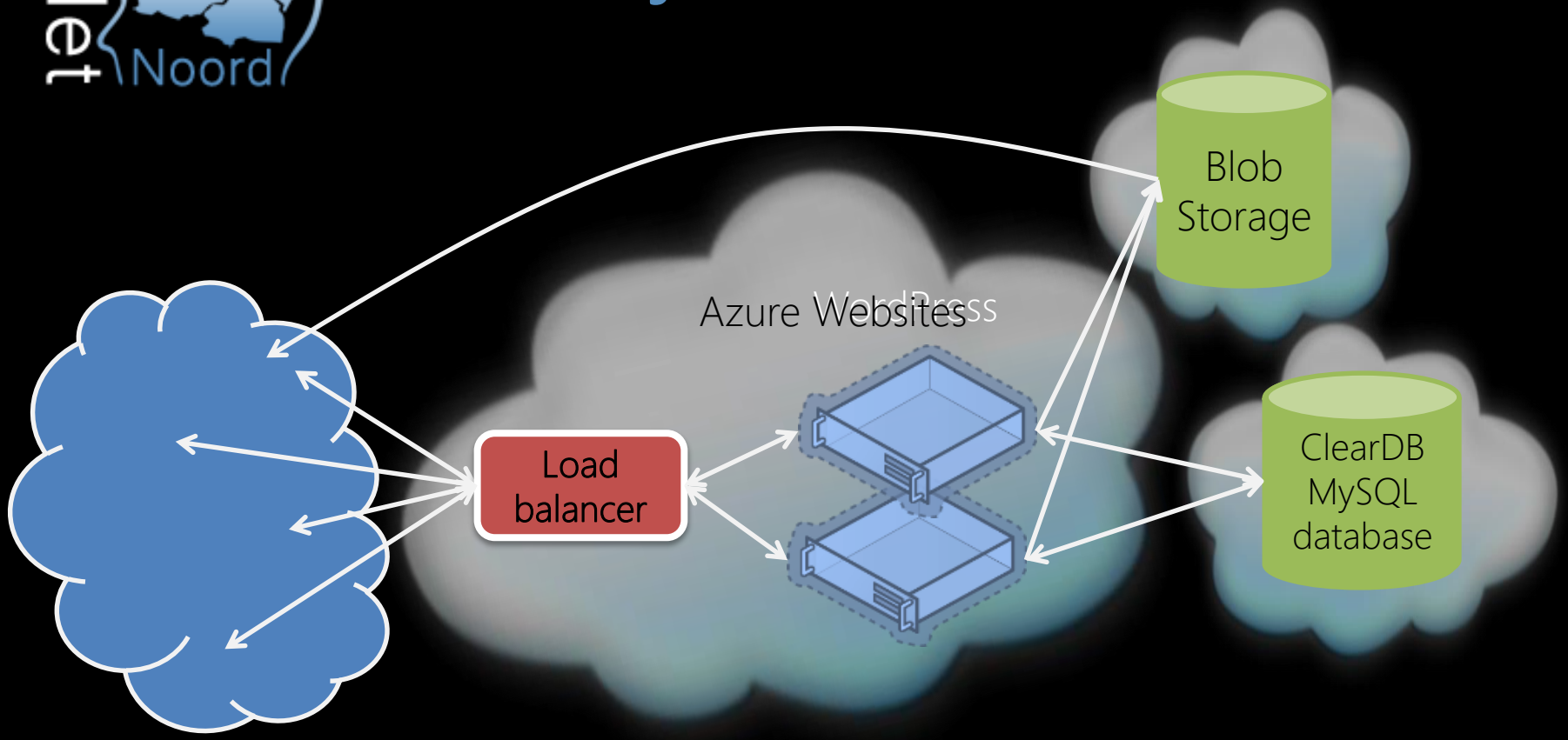
Praktijk WordPress

Websites bij TV uitzendingen

Piekbelasting bij oproep om naar site te gaan

Maak gebruik van caching

Praktijk



WordPress
W3 Total
Cache plugin

Optimalisatie

- Betalen voor gebruik, betekent opruimen!
- Dataverkeer: denk aan grote afbeeldingen, redirects, client side caching
- Storage: denk aan oude logs, historische data in SQL Azure

Vragen?

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