



Platform-as-a-Service

Csaba Simon

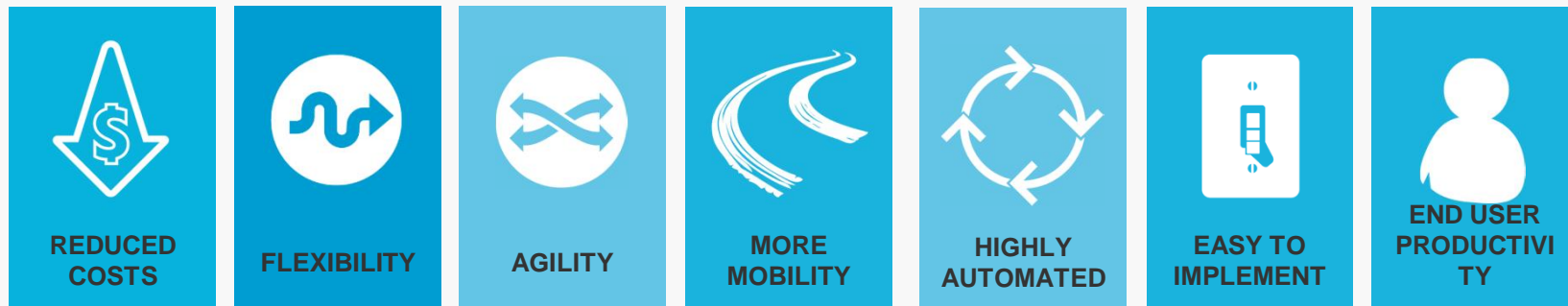
Budapesti Műszaki és Gazdaságtudományi Egyetem
Villamosmérnöki és Informatikai Kar
Távközlési és Médiainformatikai Tanszék

BME-TMIT

INTRO – CLOUDS REVISITED

Cloud business roles

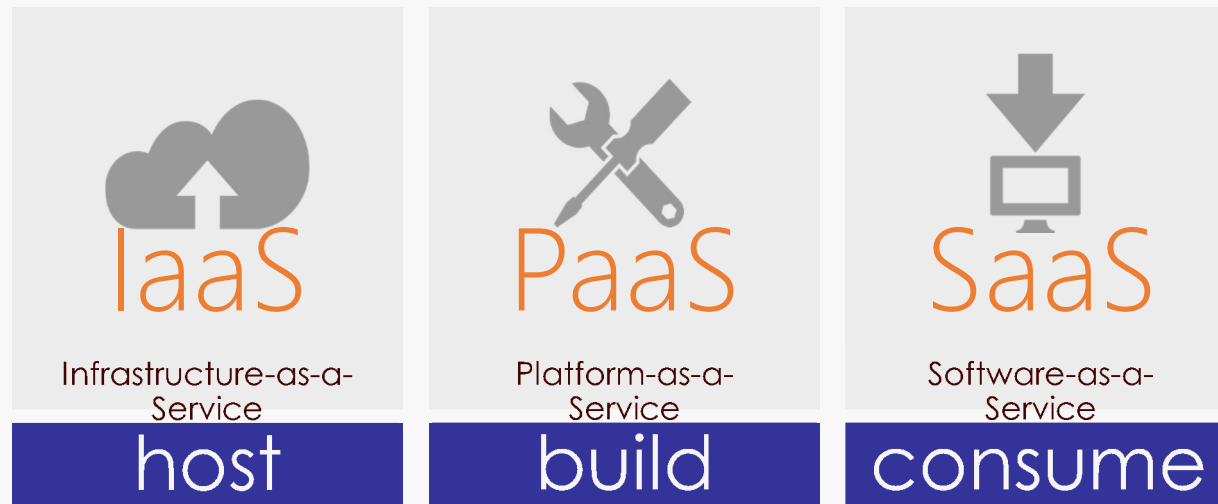
Expected benefits



Required infrastructure features



Cloud terminology – technological view



Cloud types

Deployment mode

Private Cloud

Public Cloud

Hybrid Cloud

Service mode

Infrastructure
as a Service
(IaaS)

Platform as a
Service
PaaS

Software as a
Service
SaaS

WHAT IS THE PAAS?

Platform as a Service – the **services**

Services: what offers PaaS to us?

- App **deployment**
- **Scaling** (horizontal, vertical, auto)
- Load **balancing**
- Health **monitoring**, auto recovery
- **Logging** service
- External/internal services, **marketplace**

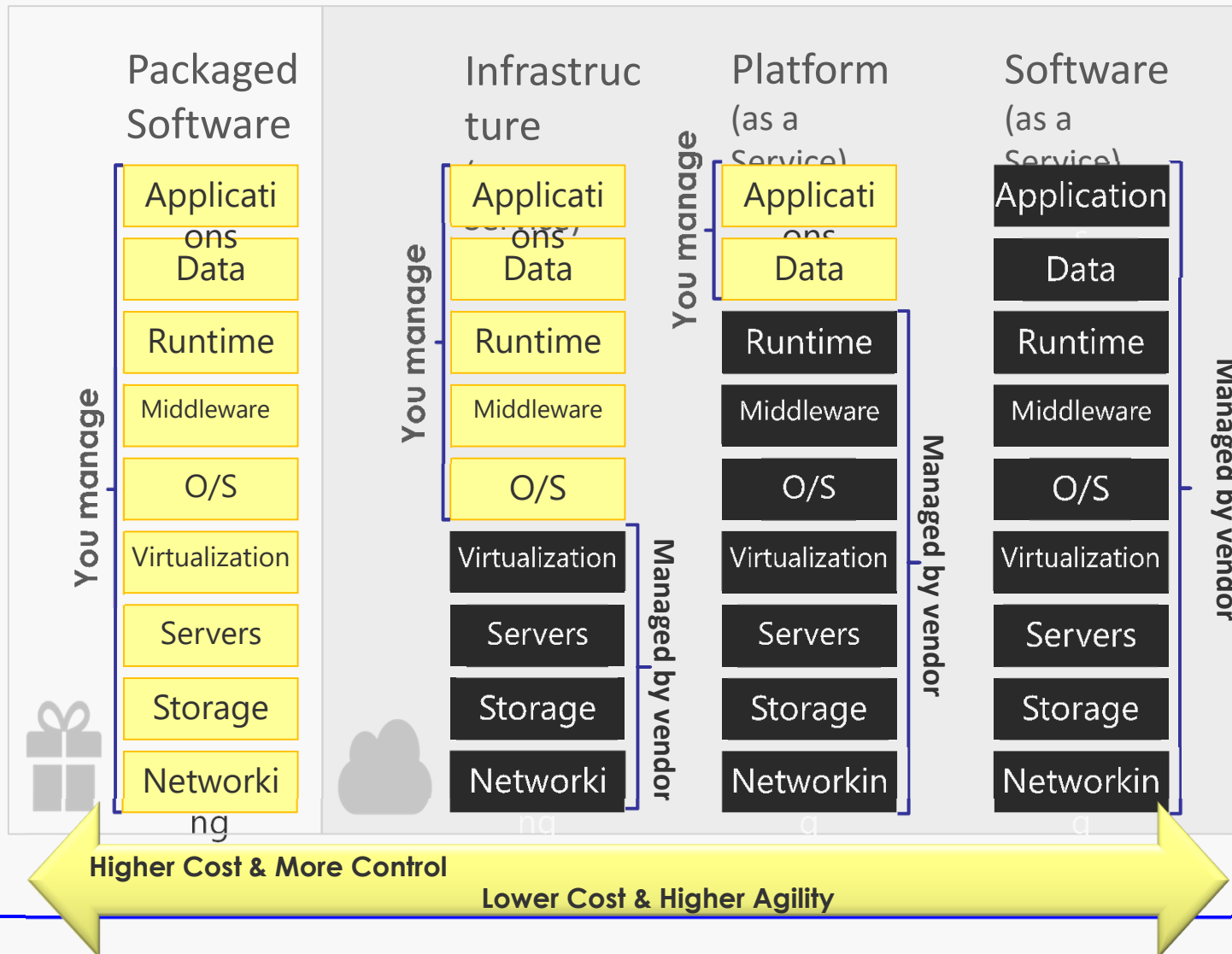
Advantages of PaaS – the **Platform** assures

- deployment
- load balancing
- high availability
- log aggregation
- scaling
- Image mgmt –
 - » Libraries, kernel versions
 - » Security updates

(Tenant's problem: just develop your **own app**)

- **El ny**: A felhasználó a saját alkalmazásának kidolgozására koncentrálhat

Compare the *aaS-es



Comparing the *aaS models

- » IaaS: The end user maintains control of the operating system and applications on the hardware.
- » PaaS: end user has to development, testing, deployment, and ongoing maintenance of applications
- » SaaS: end users pay on a per-use basis

PaaS in a nutshell

Allround and complex set of services

Fast application management

- build
- telepítés
- menedzsment

On global (multi-site) networks



Flexible



Open



Solid

PaaS system varieties

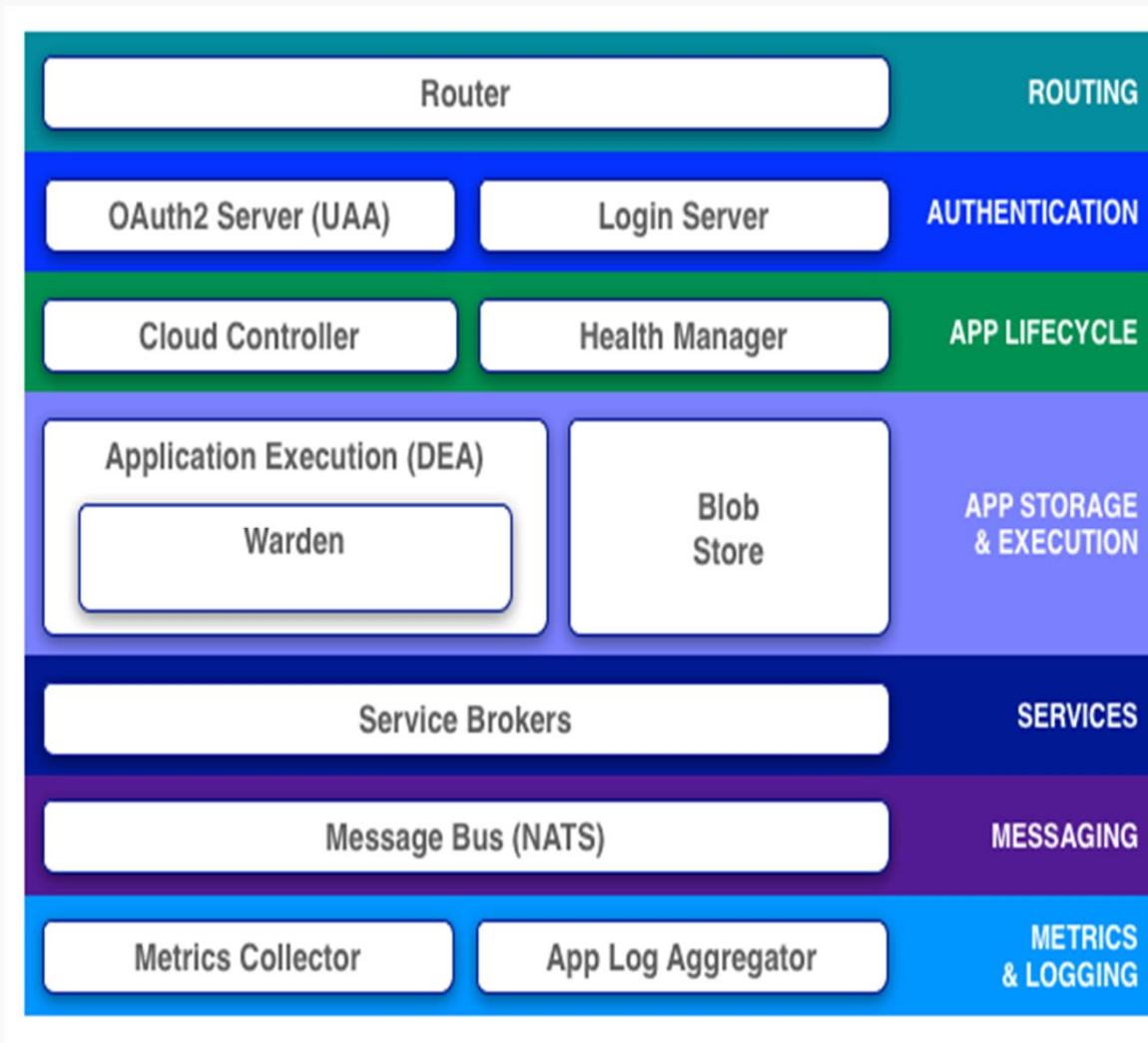
- Services that help develop and test apps
 - infrastructure is maintained by the provider
- Reduced infrastructure complexity
 - more effective overall application development
- Runtime environments are usually lock-in free
 - but might create lock-ins to provider specific infrastructure
- Usually simple network topology and access control
 - build your services as they would be open to the Internet
- The features and services provided vary a lot
 - from simple customizable runtime (CloudFoundry) to full marketplace of services (Heroku)

PaaS - Toolchain as a Service

- Manage your project
 - Trello, Jira OnDemand, Sprint.ly, PivotalTracker, ...
- Create your code
 - Cloud9, Koding, Nitrous, ...
- Host your code
 - GitHub, Bitbucket, ...
- Build your code
 - Codeship, Travis CI, CloudBees, Drone, ...
- Test your code
 - BrowserStack, Sauce Labs, Xamarin Test Cloud, Blitz, ...
- Distribute your code
 - npm, Bintray, Maven Central, PyPI, Docker Hub, ...

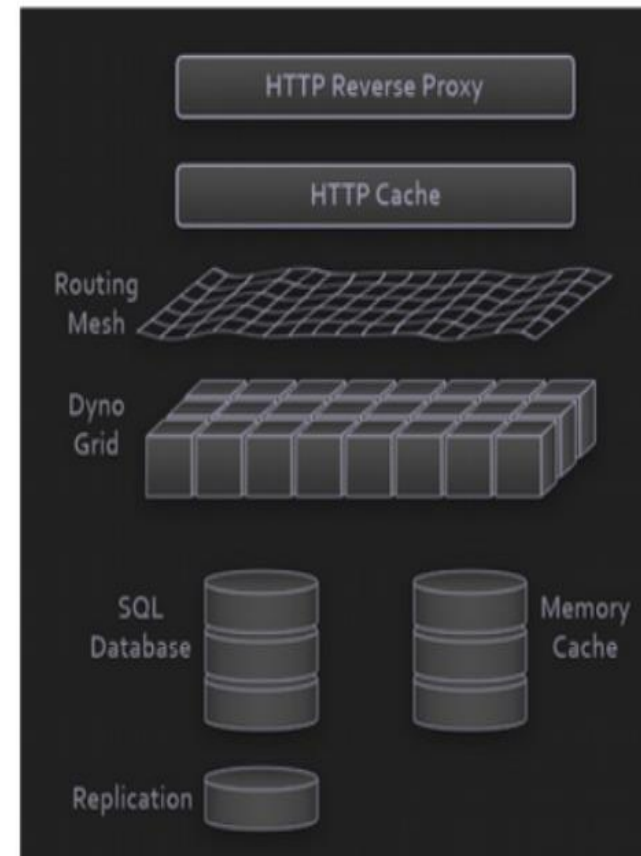
PAAS ARCHITECTURE

Cloud Foundry - Architecture



Heroku architecture

- Reverse Proxy by nginx
 - terminates SSL
 - forwards to cache layer
- HTTP Cache by Varnish
 - returns cached pages immediately
 - forwards to routing mesh
- Routing Mesh written in Erlang
 - routes to an existing dyno
 - spawns a dyno if none available
- Dyno Grid ('railgun' servers)
 - AWS hosted EC2 instances
 - multiple dynos per server

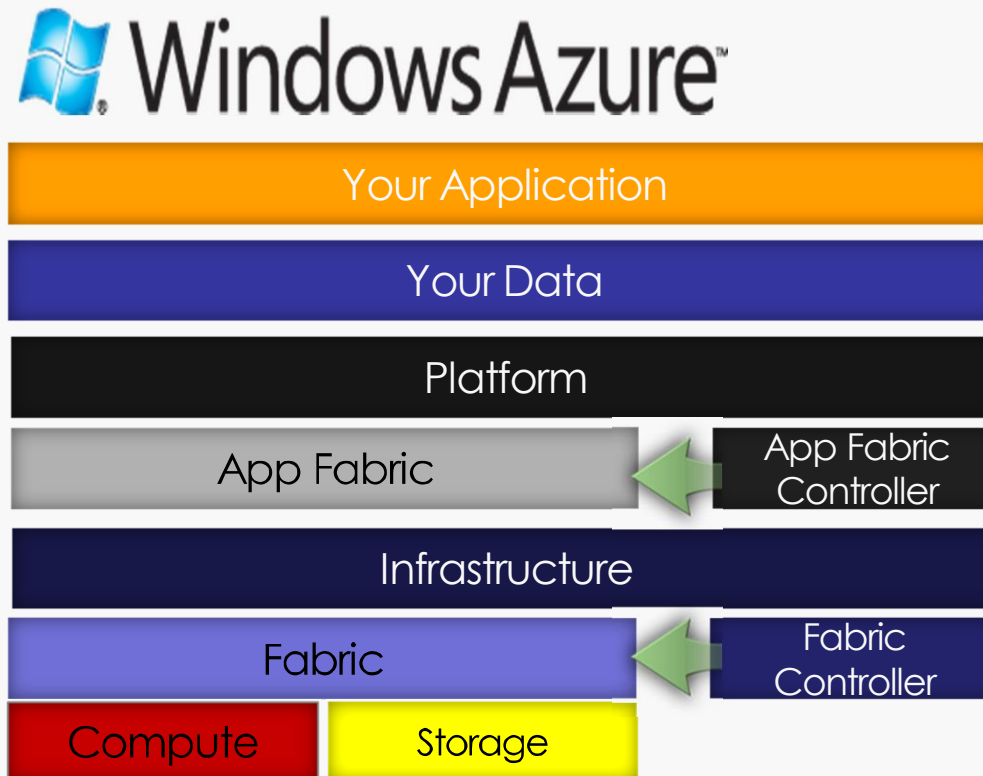


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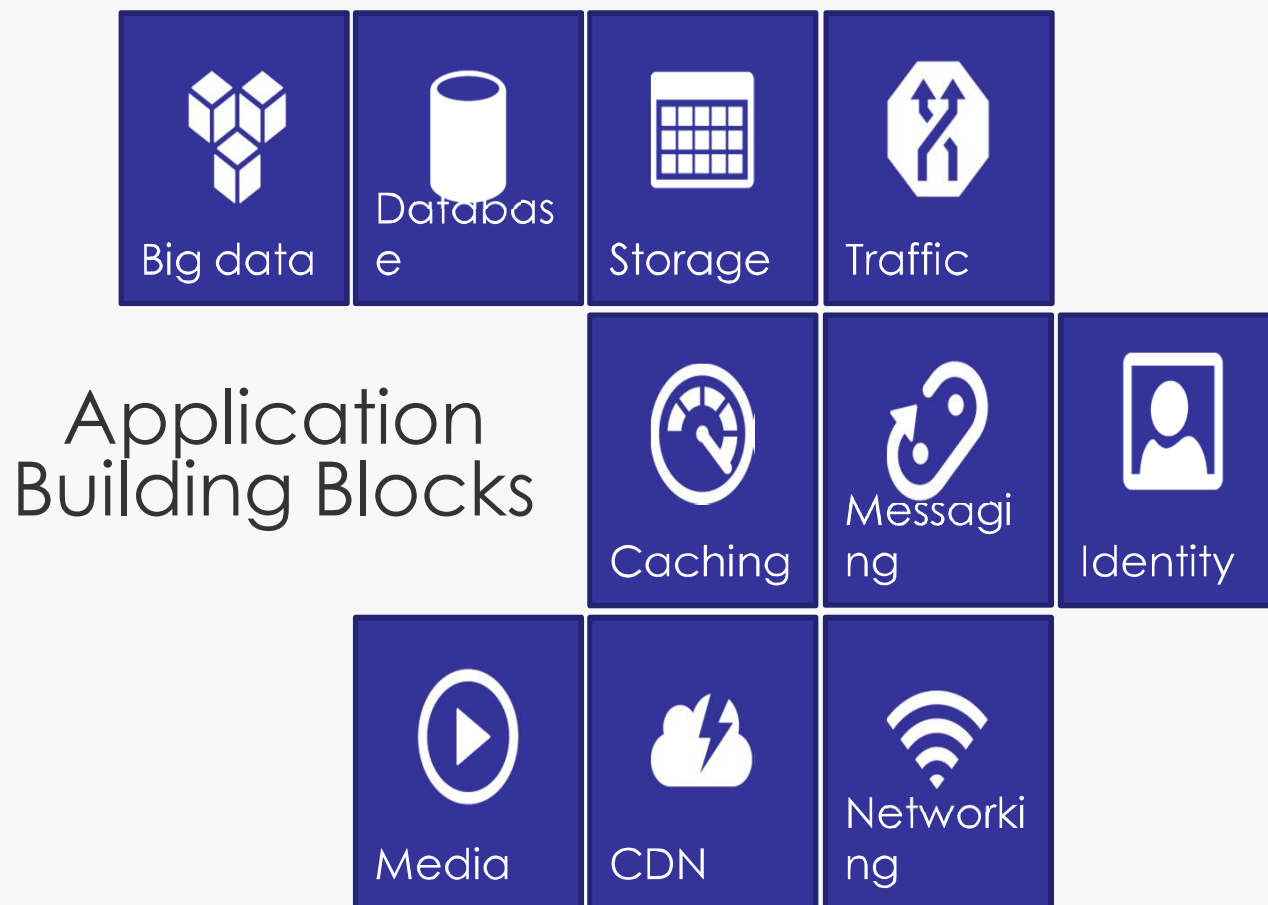
Heroku terminology

- **Application** source code and description of any dependencies
- **Procfile** list of process types – named commands to be executed
- **Deployment** sending application to Heroku using git or dropbox
- **Buildpack** compilation process that creates a slug from application
- **Slug** bundle of application, language runtime and compilation output
- **Dyno** isolated, virtualized Linux container for application runtime
- **Release** append-only ledger of slugs, config vars and add-ons
- **Config var** configuration data hosted independently of source code
- **Add-on** easily attachable third party cloud services
- **Logplex** collates logs from all running dynos and other components

Winazure



Azure Building Block Services



Sharp competition, „friendly” competitors

- » Stealing customers from a PaaS
 - » Migrate them to a different (IaaS) provider
 - » „By chance” it also offers to be the new PaaS supplier in this new setup
- » <https://www.skyliner.io/offer/heroku>

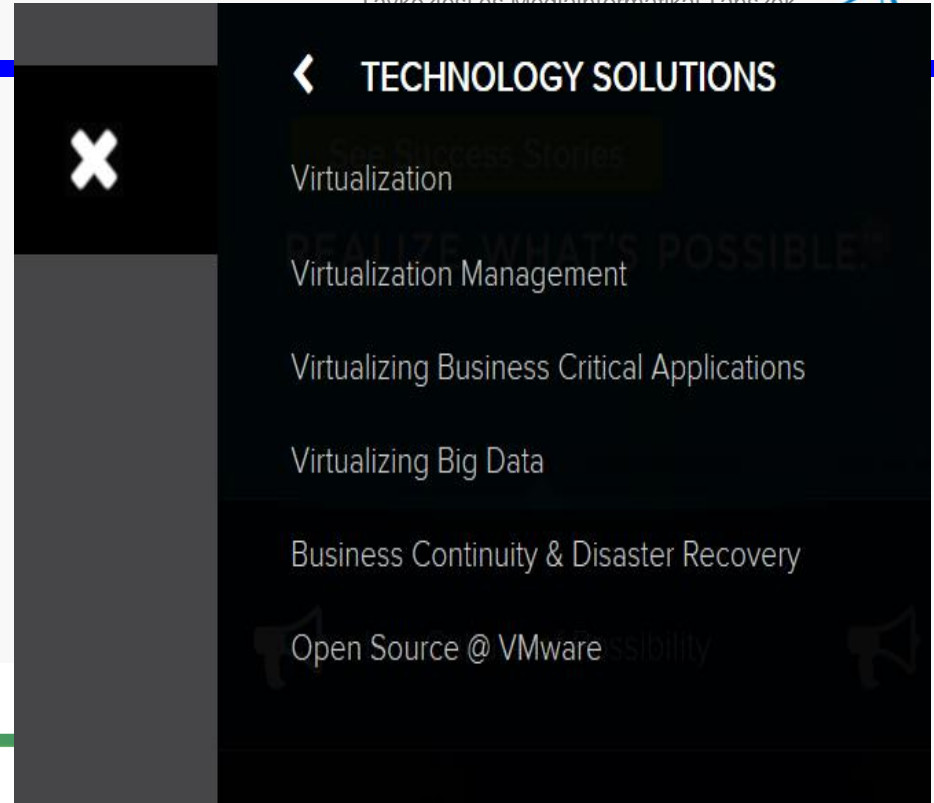
Skyliner



We'll port your Heroku app to AWS for free

Skyliner is a Heroku-like launch platform that you can use on AWS. Switching to Skyliner will save you a bundle on your infrastructure.

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