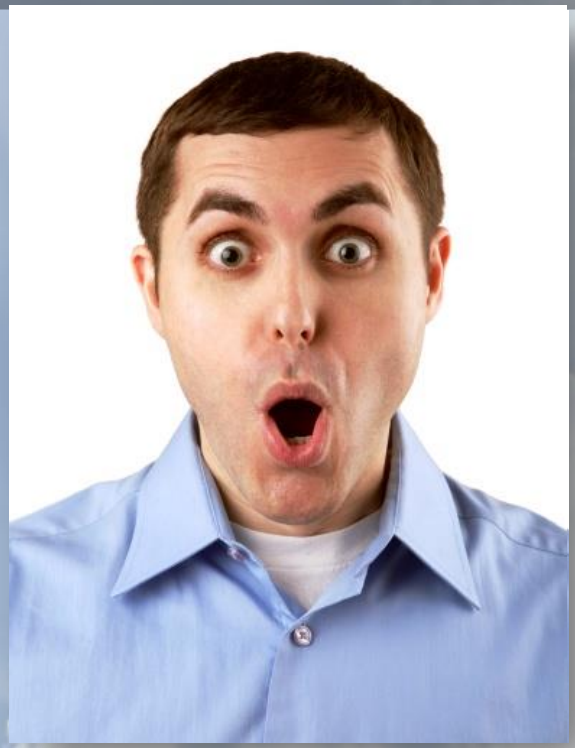
Introduction to Cloud Computing

Sridhar K. N. Rao

ACKNOWLEDGEMENTS

- Majority of the slides used in this presentation are taken ‘AS IS’ from the presentation by **Simon Guest**, Senior Director, Technical Strategy Microsoft Corporation (TechEd).
- Thanks a LOT Simon!


CLOUD COMPUTING
IS FOR
STUPID PEOPLE



Cloudonomics: Article

Cloud Computing Is for Stupid People - Richard Stallman

"It's stupidity. It's worse than stupidity: it's a marketing hype campaign"

BY CLOUD NEWS DESK ARTICLE RATING: ☆☆☆☆☆

OCTOBER 10, 2008 09:15 PM EDT READS: 3,100

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In an interview published by **The Guardian** on Monday, Richard Stallman says "The concept of using web-based programs like Google's Gmail is "worse than stupidity. Cloud Computing - where IT power is delivered over the internet as you need it, rather than drawn from a desktop computer – has gained currency in recent years. Large internet and technology companies including Google, Microsoft and Amazon are pushing forward their plans to deliver information and software over the net But Richard Stallman, founder of the Free Software Foundation and creator of the computer operating system GNU, said that cloud computing was simply a trap aimed at forcing more people to buy into locked, proprietary systems that would cost them more and more over time. It's stupidity. It's worse than stupidity: it's a marketing hype campaign."

Cloud Computing on Wall Street Conference & Expo Announced
SYS-CON Events announced today that the **Cloud Computing on Wall Street Conference & Expo** will take place on March 22-24, 2009, in New

Related Stories

- The Darker Sides Of Cloud Computing: Security and Availability
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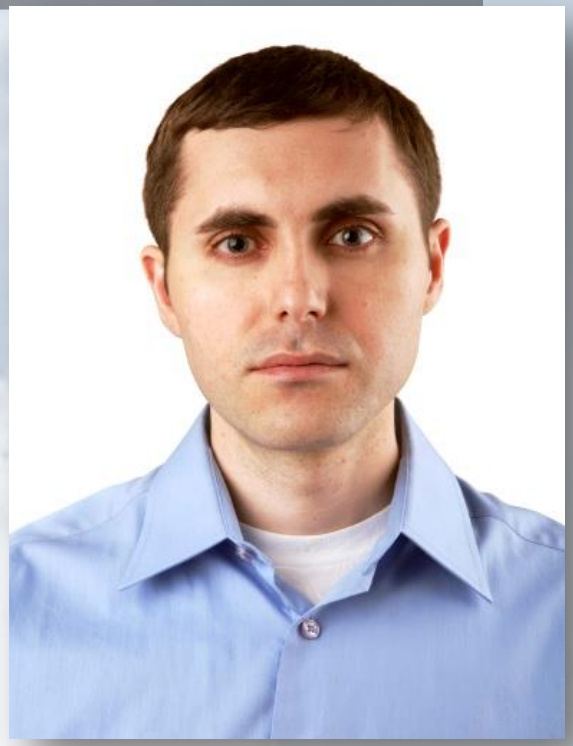
- Virtualization Conference Europe 2009: 18-19 May 2009 in Prague
- Photo Album of the 1st International Cloud Computing Conference & Expo
- 4th International Cloud Computing Conference & Expo: Call for Papers

Is cloud computing for stupid people?!

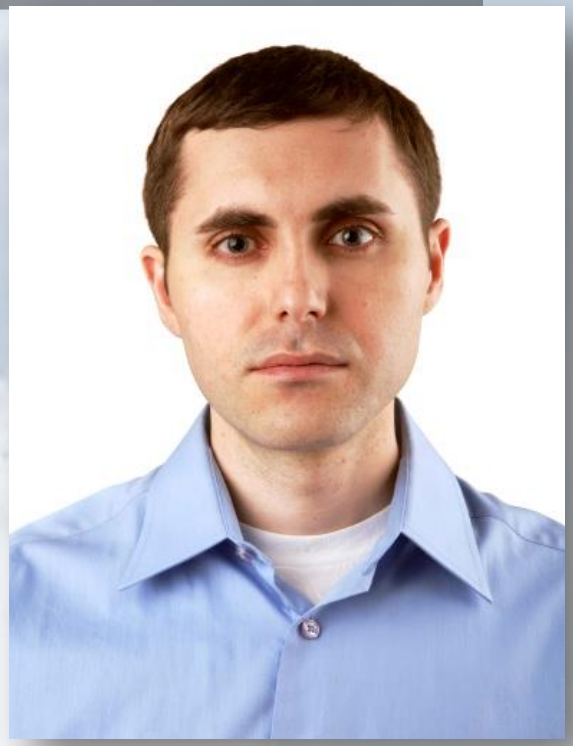
http://cloudcomputing.sys-con.com/node/692407

Introducing Jim



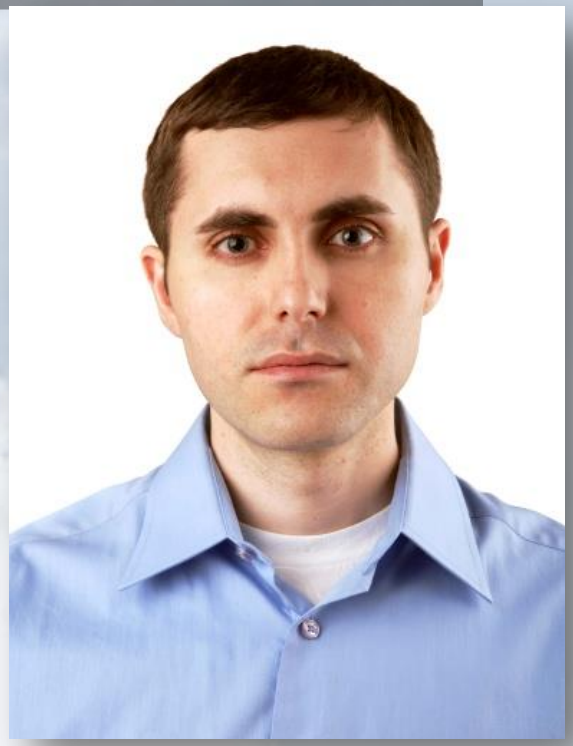
This is Jim

Introducing Jim



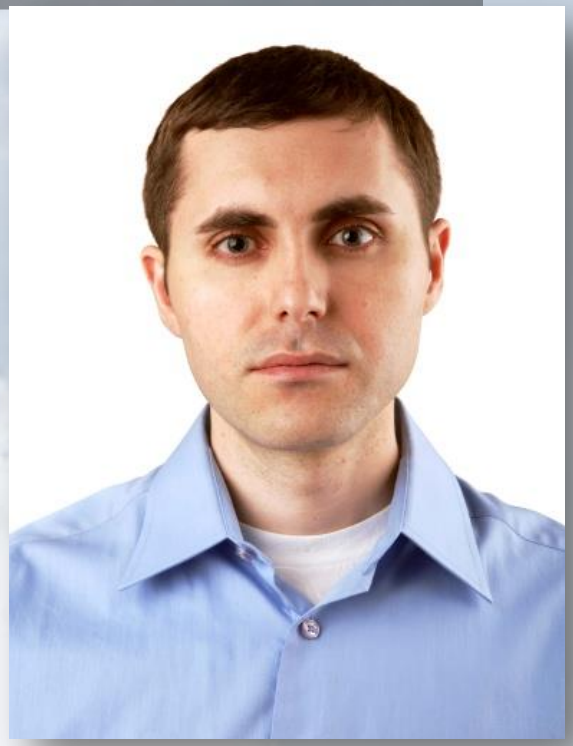
Jim is an IT Manager

Introducing Jim



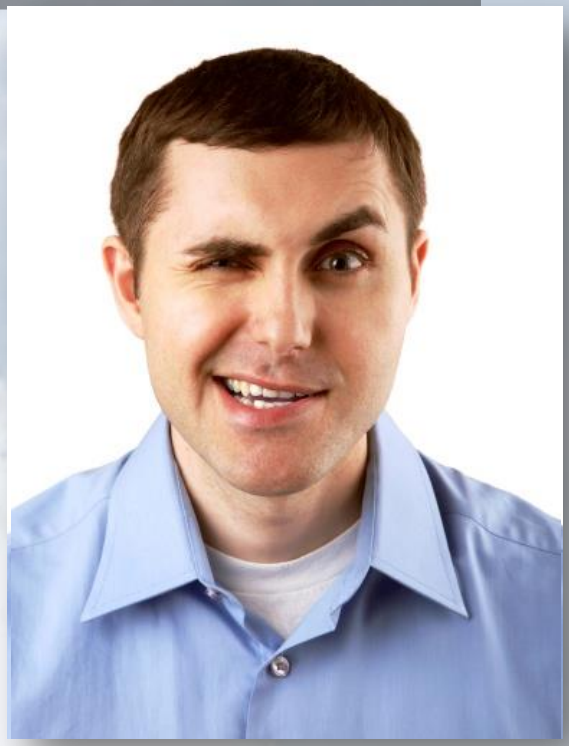
For a large pharmaceutical

Introducing Jim



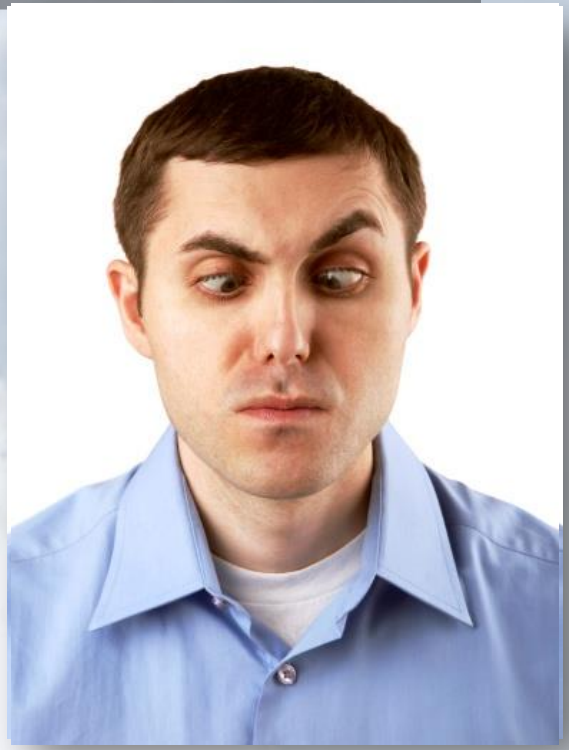
Jim's Boss (the CIO) has asked him to "move their company to the cloud"

Introducing Jim



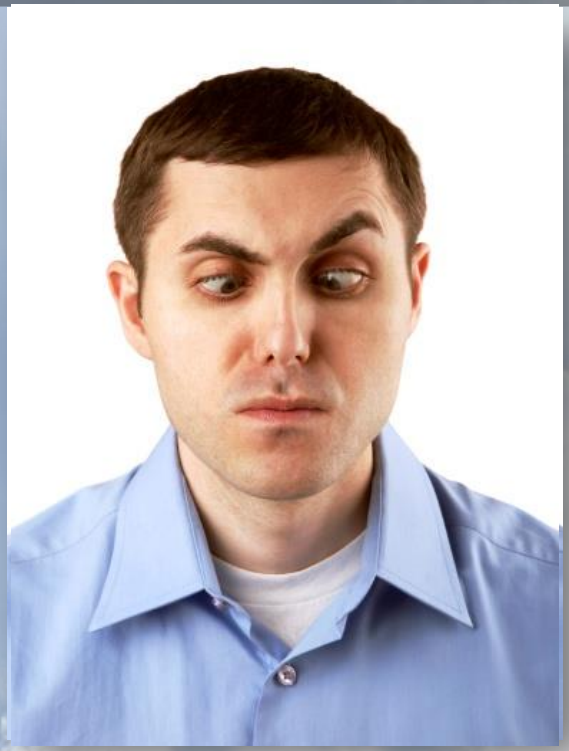
Jim has no idea what this means

Introducing Jim



Jim has heard of cloud computing, but is lost when it comes to the terminology

Introducing Jim



The myth of cloud computing

Virtualization can save money -- and open up new security issues

By Bill Brenner

Comments (0) Recommended (10) Digg Twitter ShareThis

December 1, 2008 (CSO) Companies hungry for IT efficiency and cost savings absolutely love virtualization. The idea of reducing racks of servers into smaller and cheaper machine farms is simply irresistible in just about every enterprise.

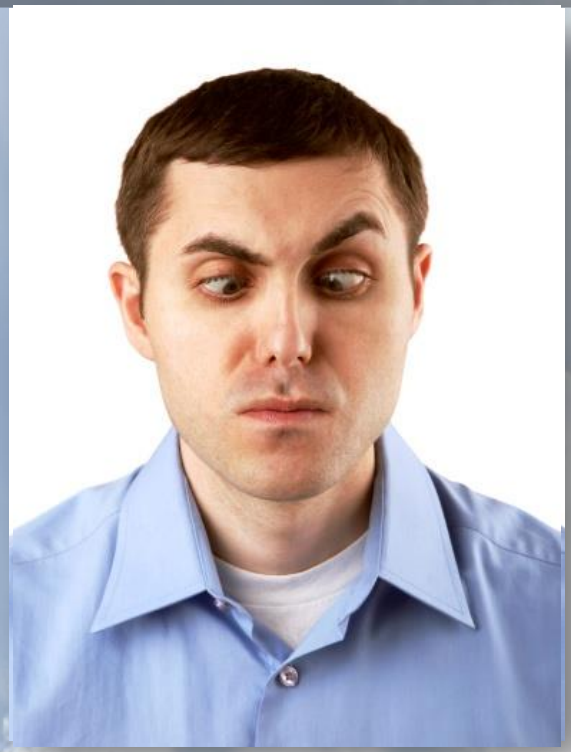
Security vendors have seized on this with an array of products promising "security in the cloud." But the adopters often lack a basic understanding of what virtualization is about, and that's a problem, industry experts say.

"When you look at how people think of virtualization and what it means, the definition of virtualization is either very narrow -- that it's about server

Is cloud computing just about virtualization in the data center?

http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9121923

Introducing Jim



Are SaaS & Cloud Computing Interchangeable Terms?

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Feb 16th, 2009, 10:24 am

A couple of weeks ago Alfresco CTO John Newton posted the following tweet on Twitter:

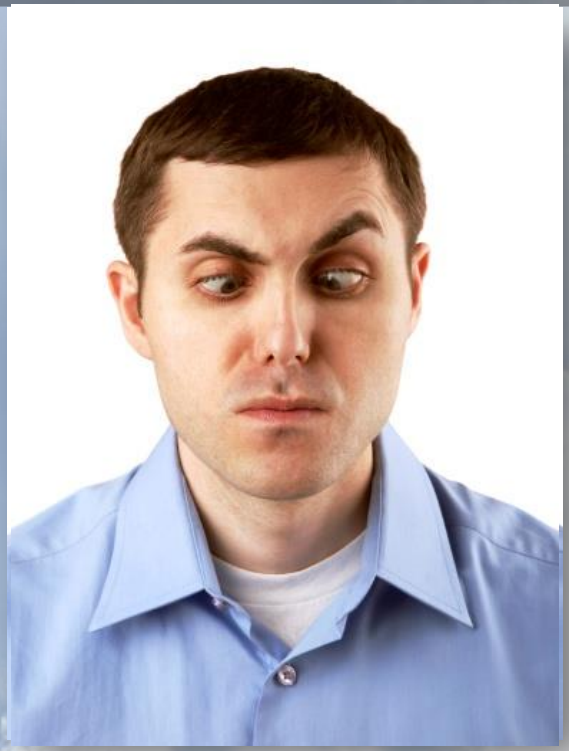
*"Does **Cloud** = **SaaS** [Software as a Service]? I don't think so. **Cloud** is **computing**, more like electricity."*

My gut reaction was that they were equal, and up until that moment I had used the terms interchangeably, but Newton's post got me thinking that perhaps they were different. **SaaS** applications use **cloud** platforms, but are not exactly **cloud computing**. The more I thought about it, however, the less clear it got, so I decided to do some research and also take my questions directly to some **cloud computing** experts and ask if the two terms were indeed synonymous or if they were as Newton opined, completely different.

Is cloud computing just another term for software as a service?

http://www.daniweb.com/blogs/entry3993.html#

Introducing Jim



Is this Cloud thing something new?

January 3, 2009 in Basic Views by *hugo.mag* | No comments

For my first post here I going to answer this question (sort of):

To be honest I was skeptical about Cloud Computing:
Having seen in that in the past some acronyms and hypes showing up I think its natural.
One of them was Ajax. Ajax is just creating one word to sum a bunch of technologies: (X)HTML + DOM + CSS + Javascript. Don't get me wrong, I think that we need the acronyms, they are useful for comunication but they don't necessary add anything new.

One other acronym that I found interesting was ASP (Application Service Provider) that appeared to say that we would sell our same desktop applications as a service. It was not a new tecnhology, a new application or a new standard but just a new revenue model. Was this a small change? At first I thought so, but then I realized that this was a shift from the normal way of doing things that opened the door to new companies that started building applications from scratch for the internet.
At that time someone (don't remember who) called this new companies ASP2. This acronym had a short life (thankfully!) and the term Software as a Service (and the acronym SaaS) appeared.

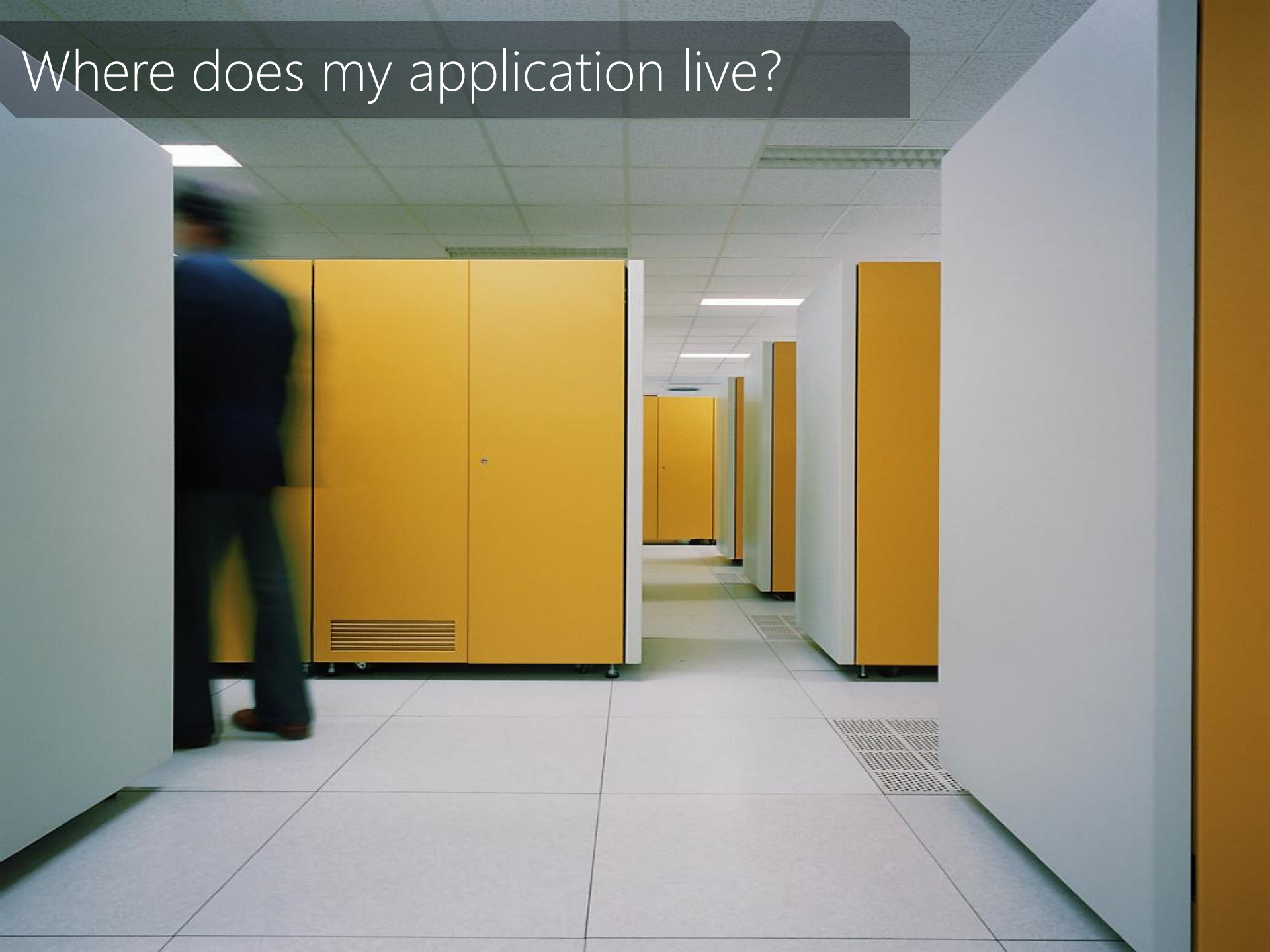
Is cloud computing something new?

http://www.cloudviews.org/2009/01/is-this-cloud-thing-something-new/

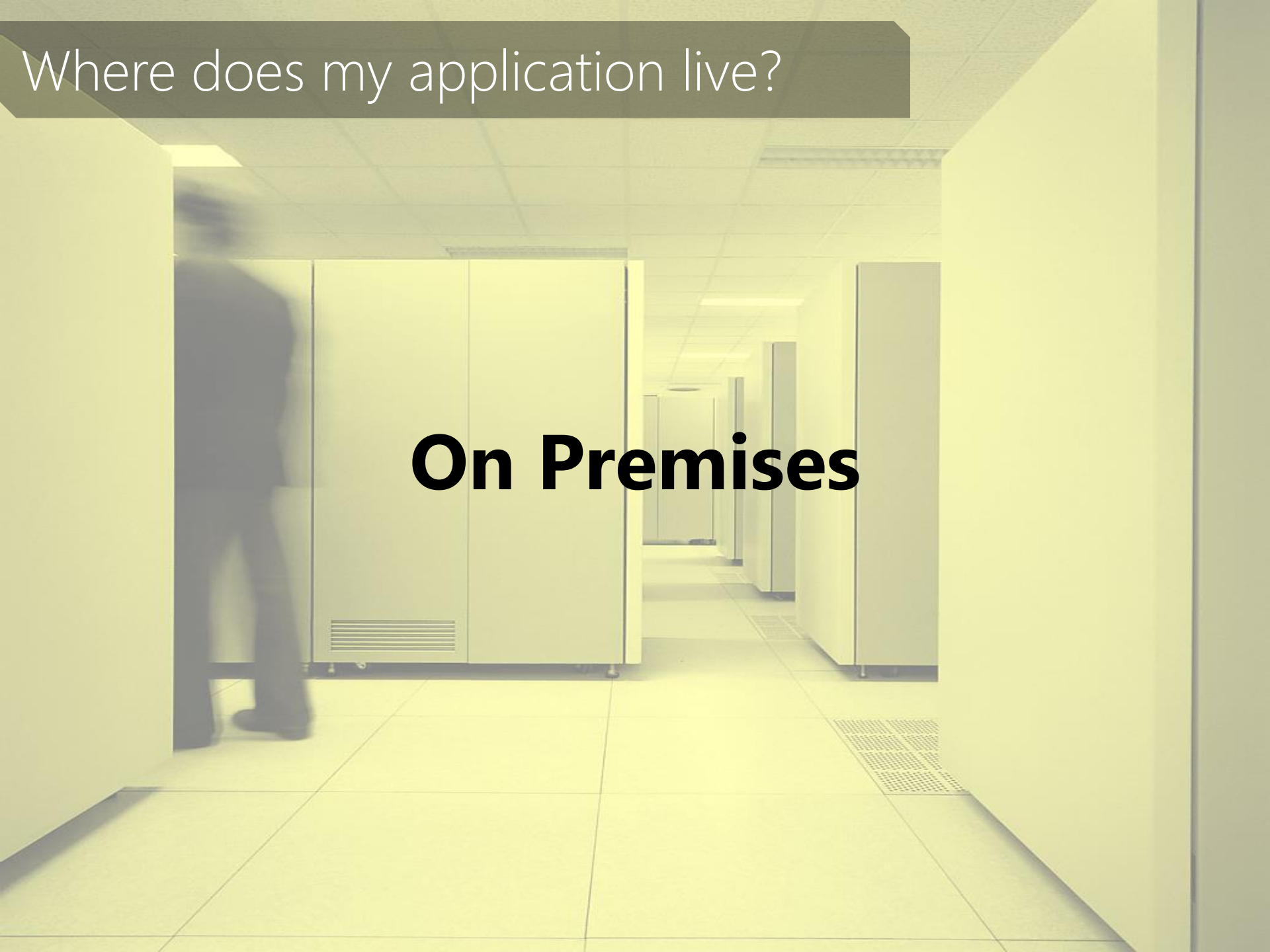
Terminology

To understand cloud computing, we need to start by looking at **where applications live**

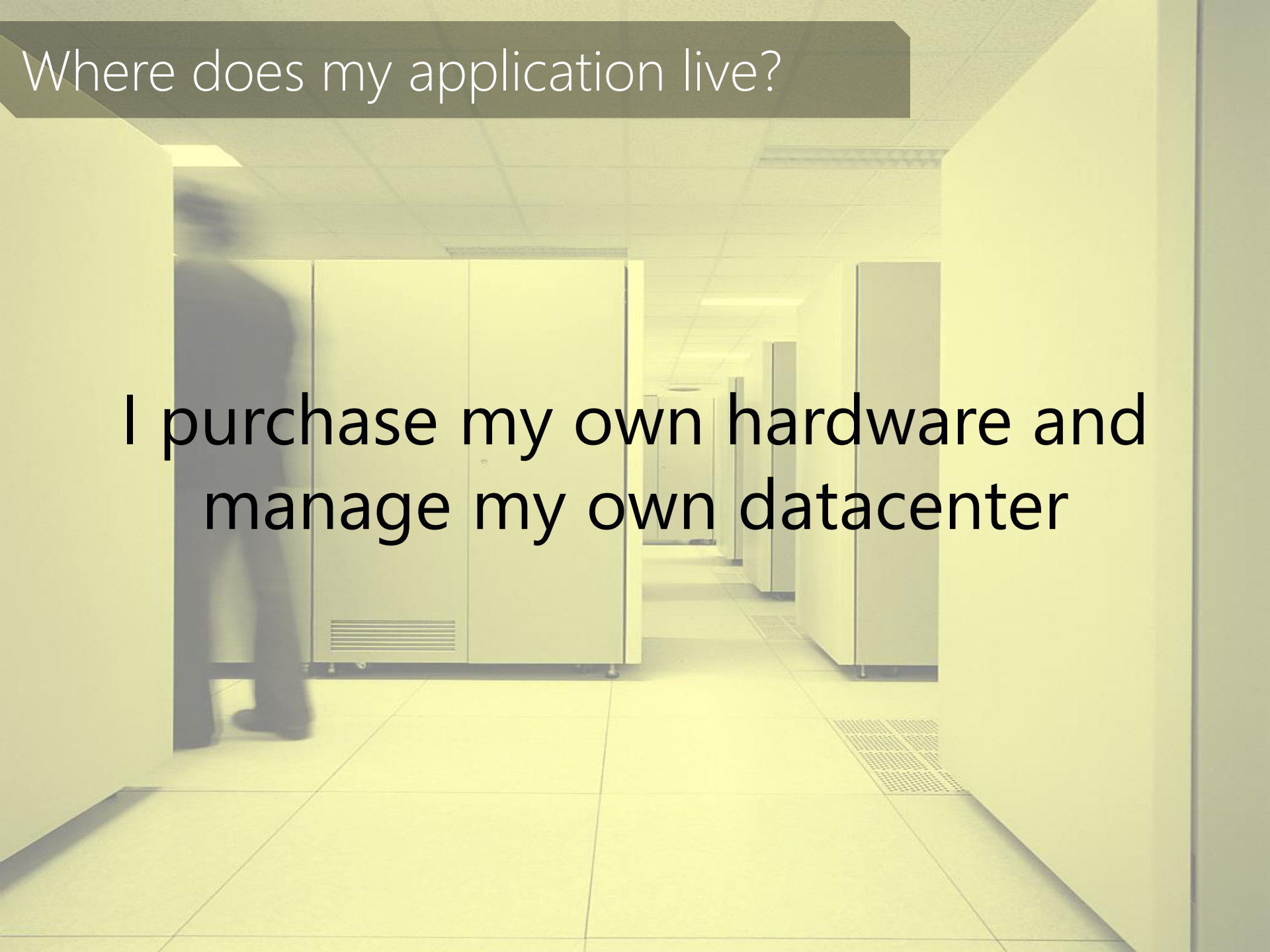
Where does my application live?



Where does my application live?

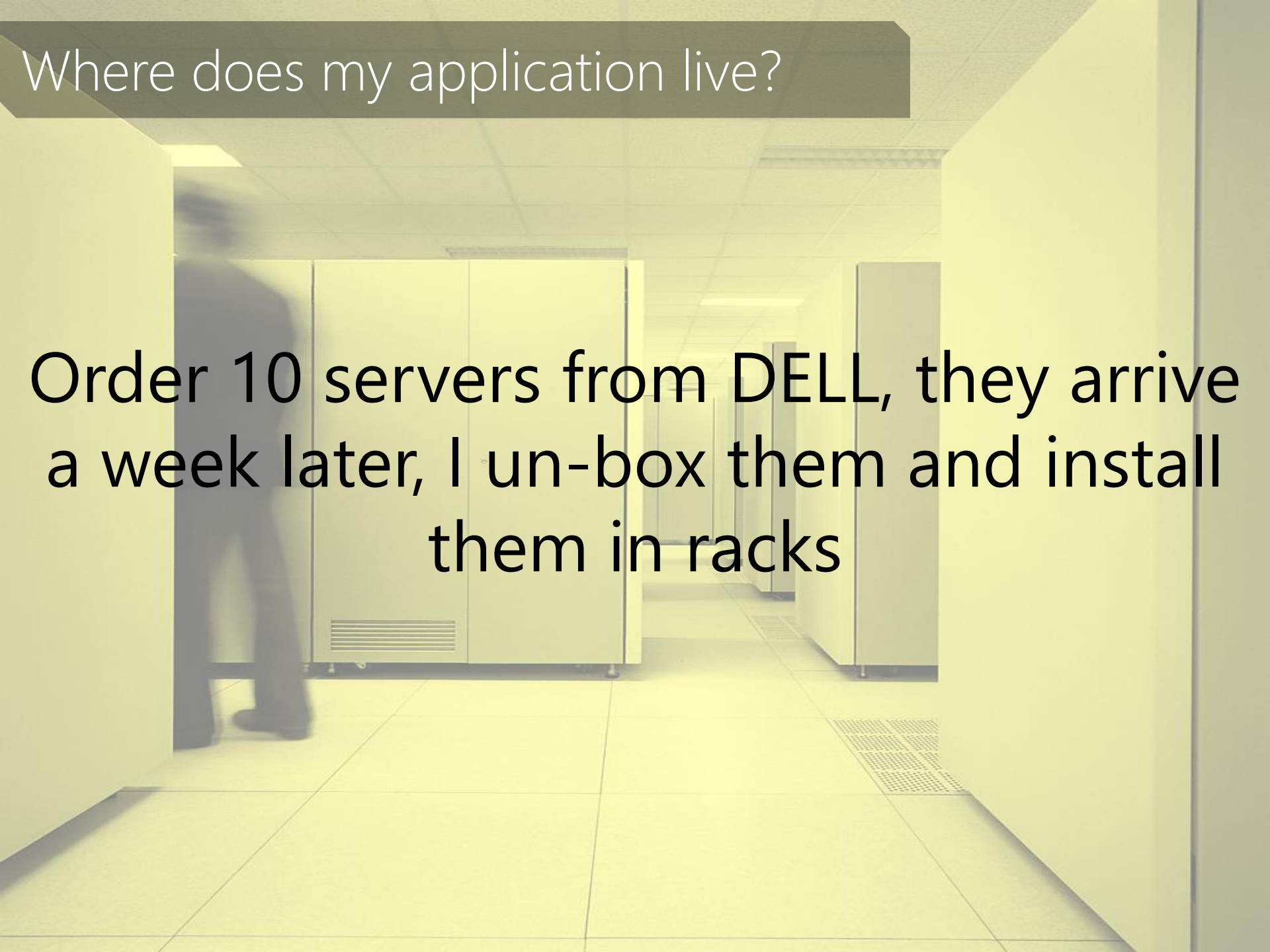


Where does my application live?



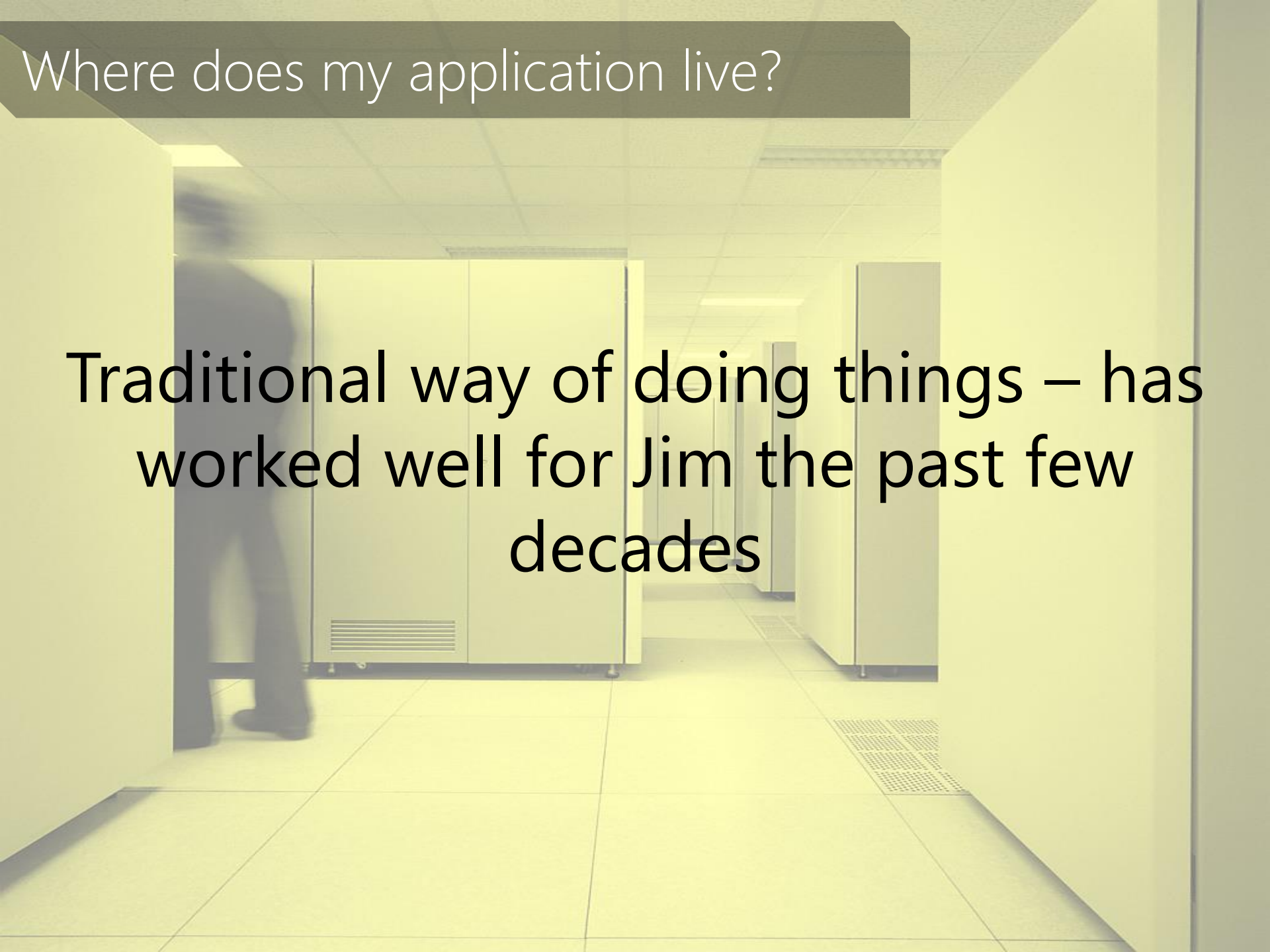
I purchase my own hardware and manage my own datacenter

Where does my application live?



Order 10 servers from DELL, they arrive a week later, I un-box them and install them in racks

Where does my application live?



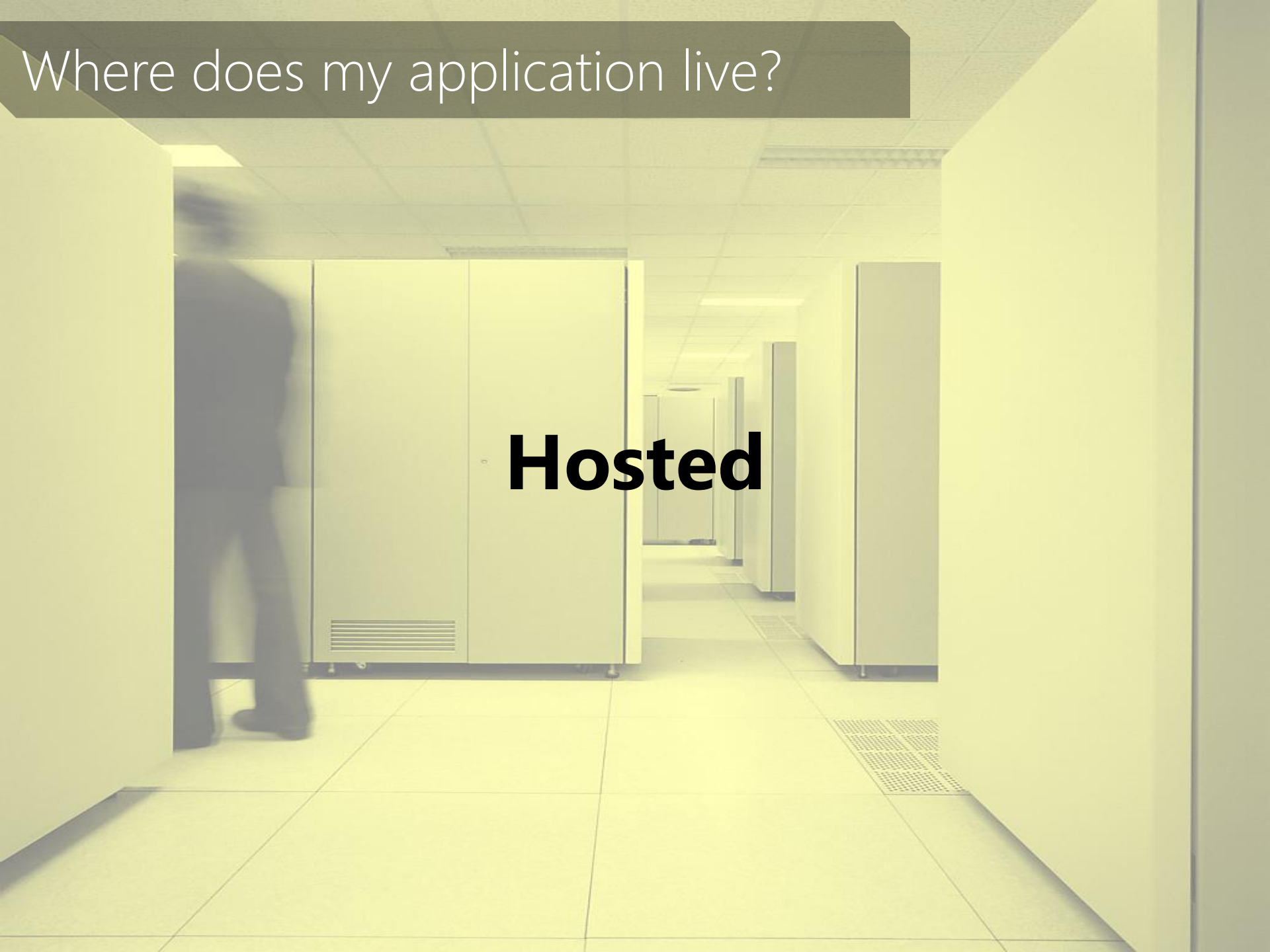
Traditional way of doing things – has worked well for Jim the past few decades

Where does my application live?

Application runs
on-premises

- Bring my own machines, connectivity, software, etc.
- Complete control and responsibility
- Upfront capital costs for the infrastructure

Where does my application live?



Where does my application live?

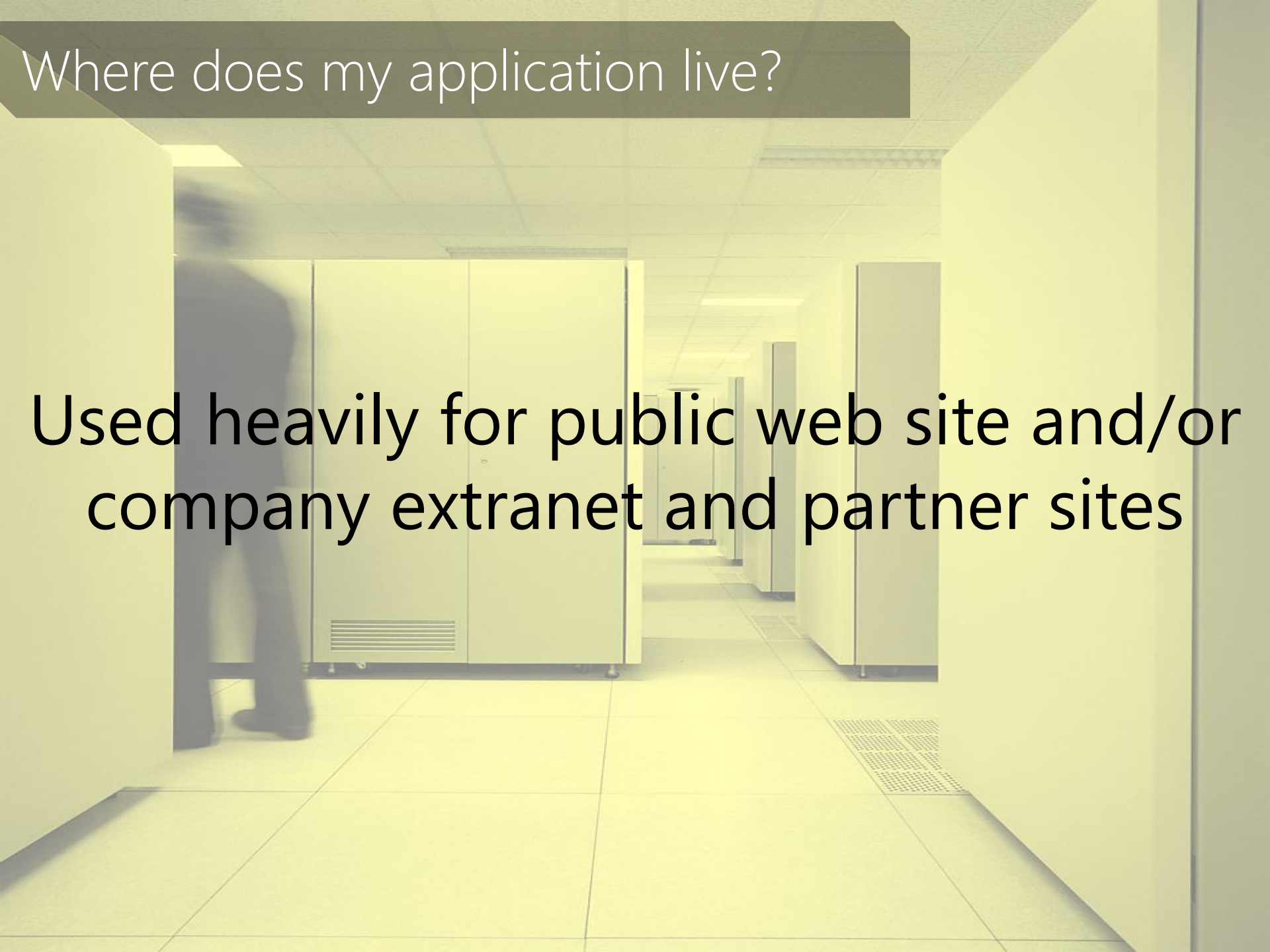
I pay someone to host my application using hardware I specify or provide

Where does my application live?

"Dear hosting company, please set me up 2 x dedicated Web servers and 1 x database, backed up nightly"

"Sure – that'll be $21.99 per month"

Where does my application live?



Used heavily for public web site and/or company extranet and partner sites

Where does my application live?

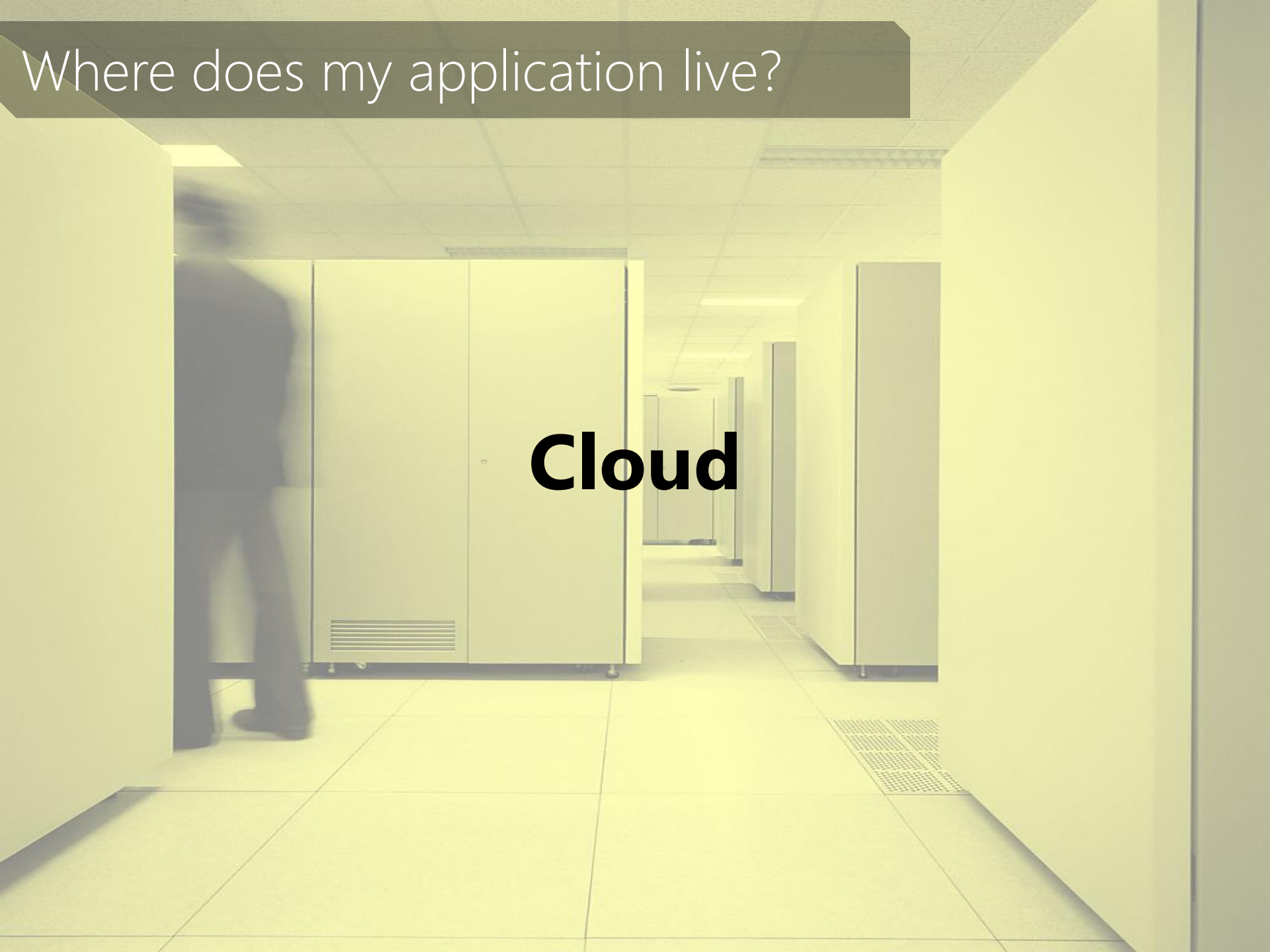
Application runs **on-premises**

- Bring my own machines, connectivity, software, etc.
- Complete control and responsibility
- Upfront capital costs for the infrastructure

Application runs at a **hoster**

- Rent machines, connectivity, software
- Less control, but fewer responsibilities
- Lower capital costs, but pay for fixed capacity, even if idle

Where does my application live?



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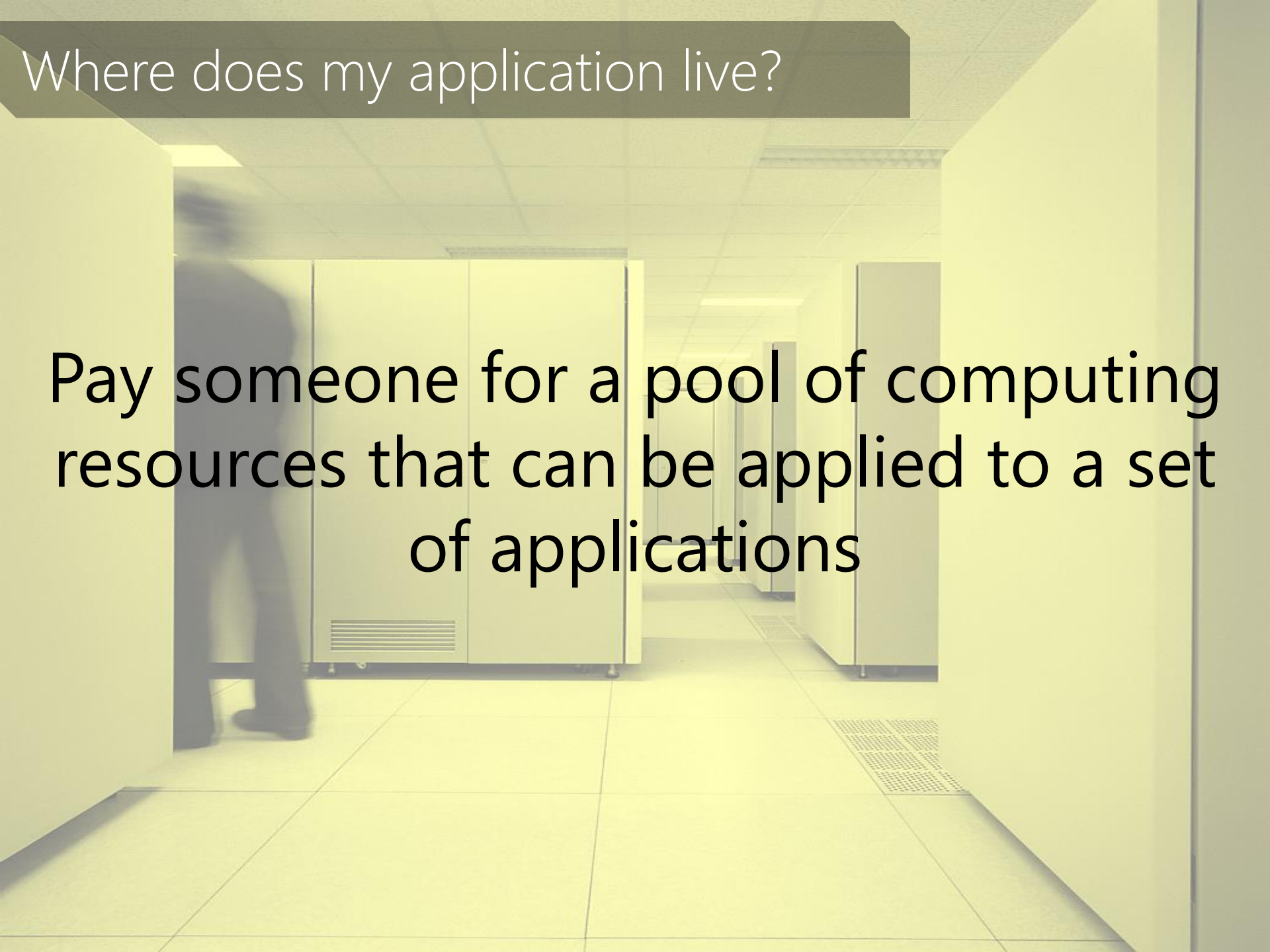


Pay someone for a pool of computing resources that can be applied to a set of applications

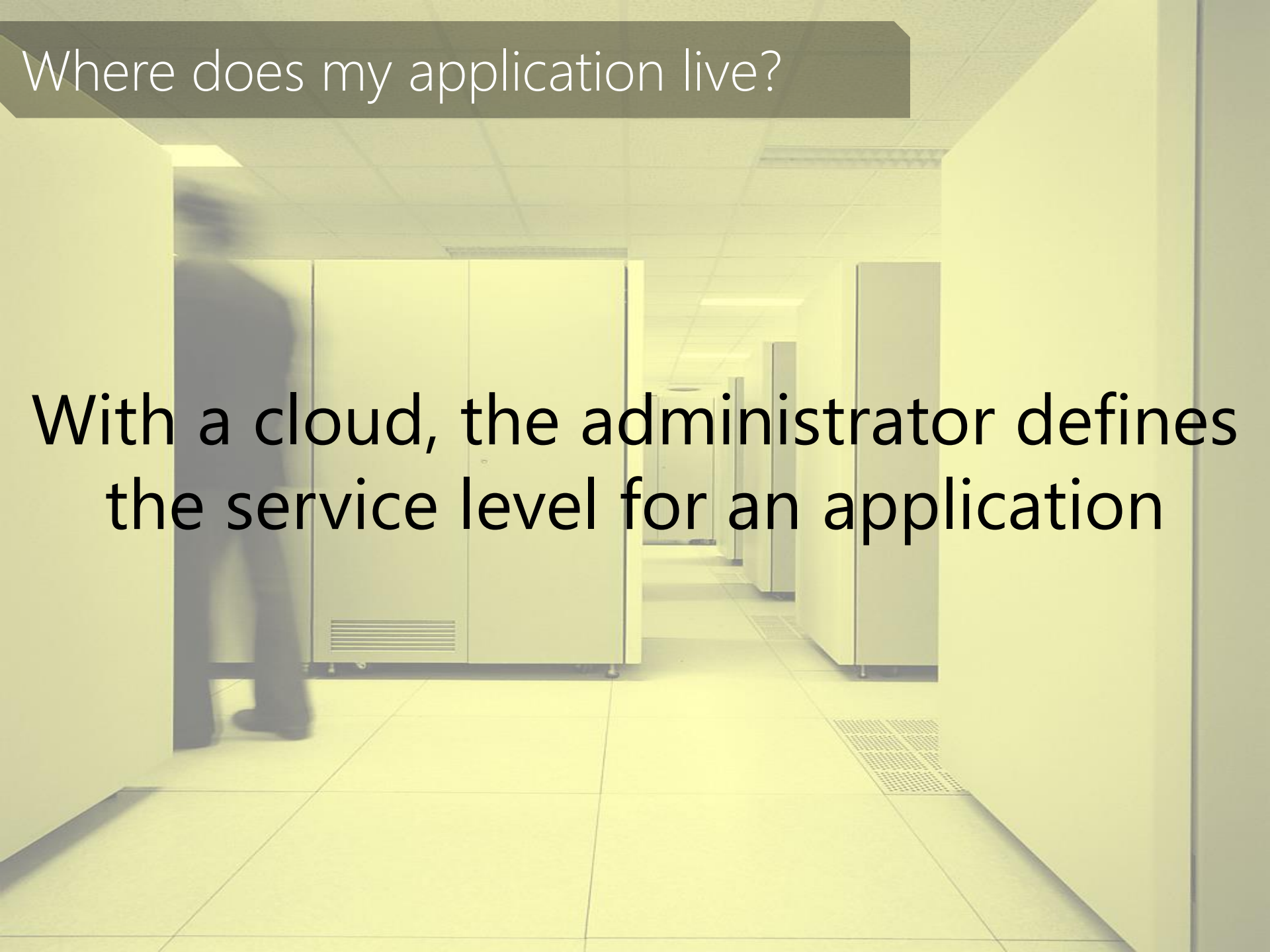
Where does my application live?

Cloud computing is a pay-per-use model for enabling available, convenient, on-demand **network access** to a **shared pool of configurable computing resources** (e.g., networks, servers, storage, applications, services) that can be **rapidly provisioned and released** with minimal management effort or service provider interaction.

[National Institute of Standards and Technology]

http://news.cnet.com/8301-19413_3-10237274-240.html

Where does my application live?



With a cloud, the administrator defines the service level for an application

Where does my application live?

The cloud software manages the application by creating one or more instances and handling storage

Where does my application live?

Application runs **on-premises**

- Bring my own machines, connectivity, software, etc.
- Complete control and responsibility
- Upfront capital costs for the infrastructure

Application runs at a **hoster**

- Rent machines, connectivity, software
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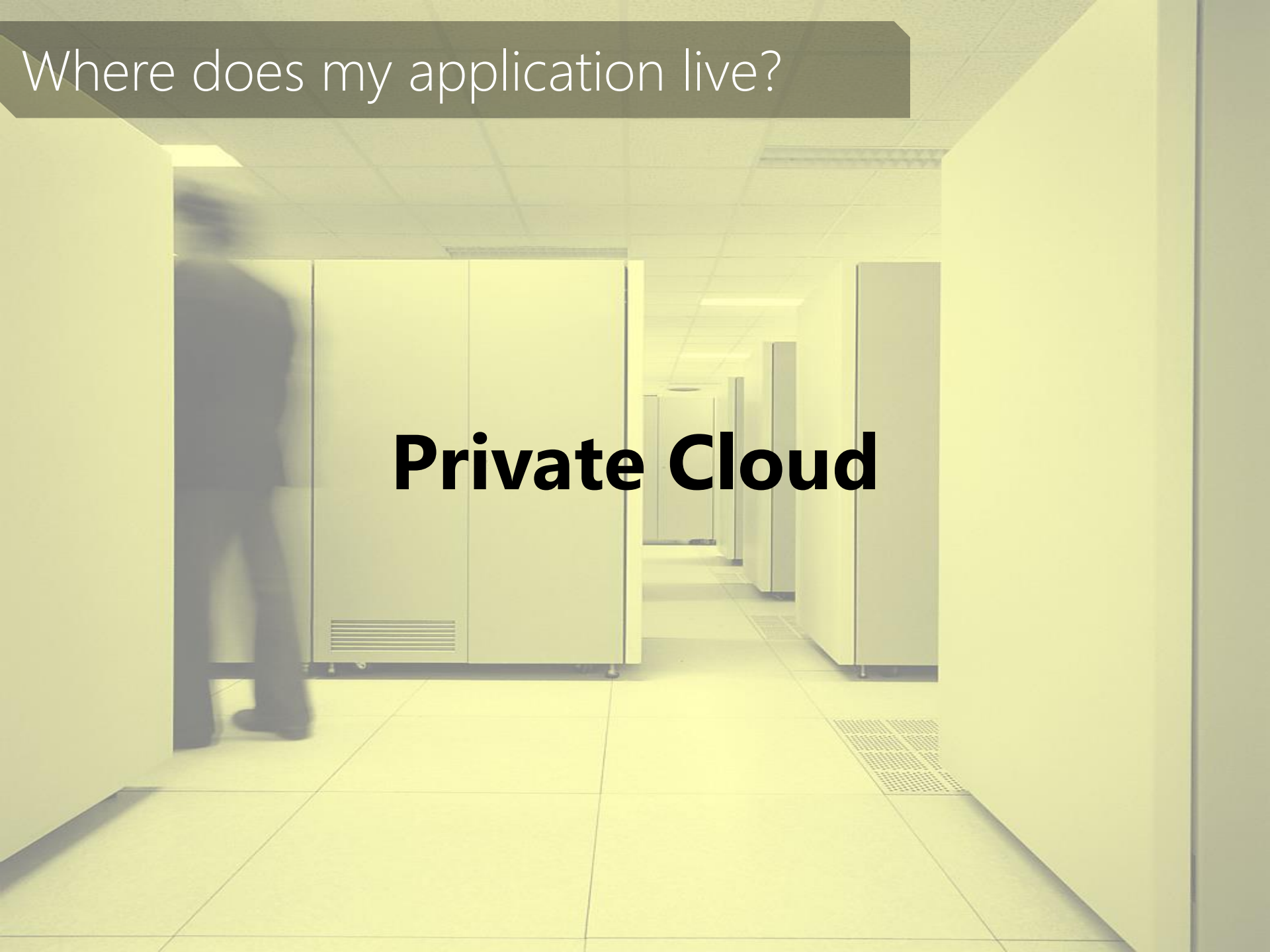
Application runs using **cloud** platform

- Shared, multi-tenant environment
- Offers pool of computing resources, abstracted from infrastructure
- Pay as you go

Where does my application live?

Cloud “Variants”

Where does my application live?



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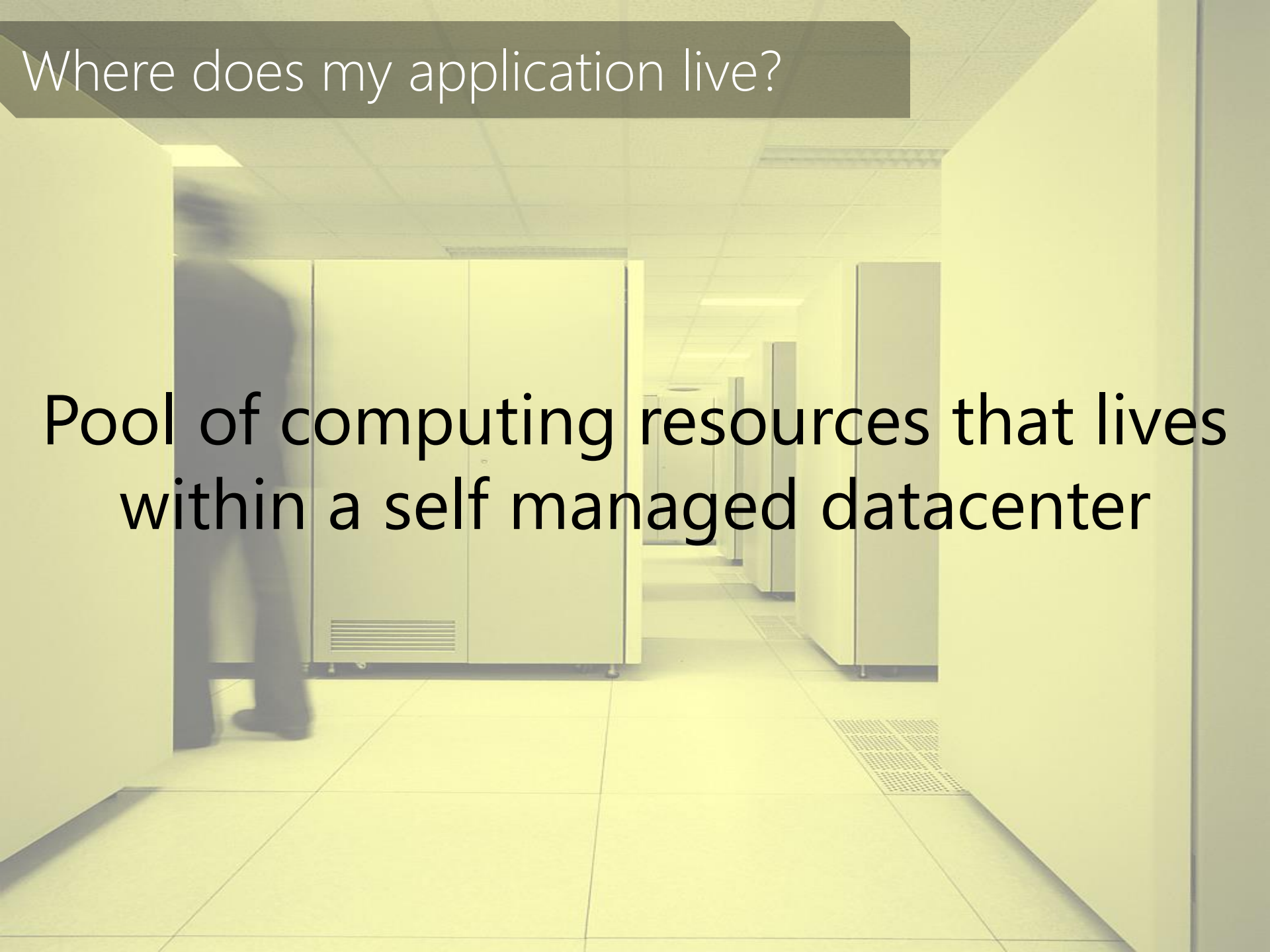
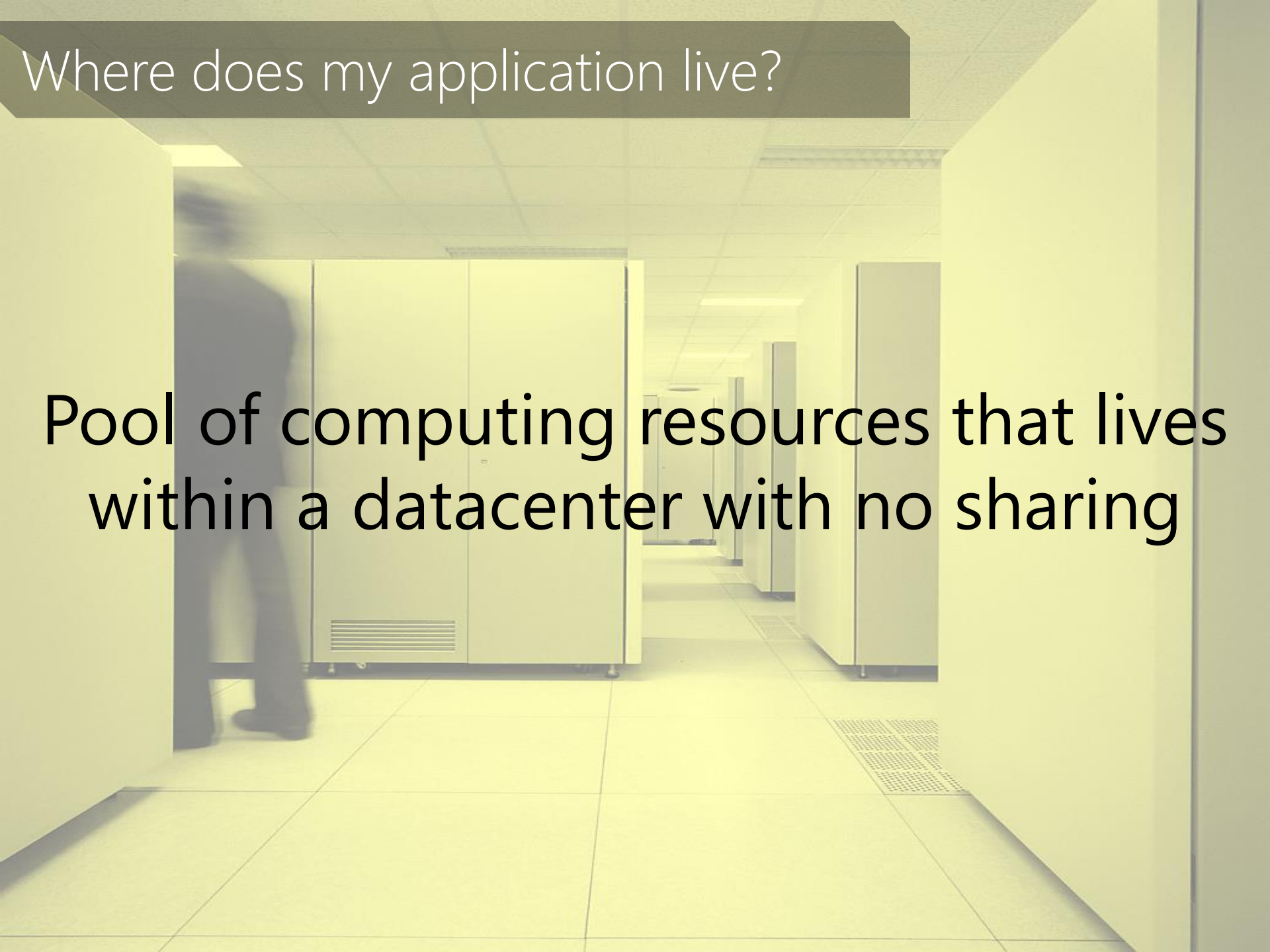


Pool of computing resources that lives within a self managed datacenter

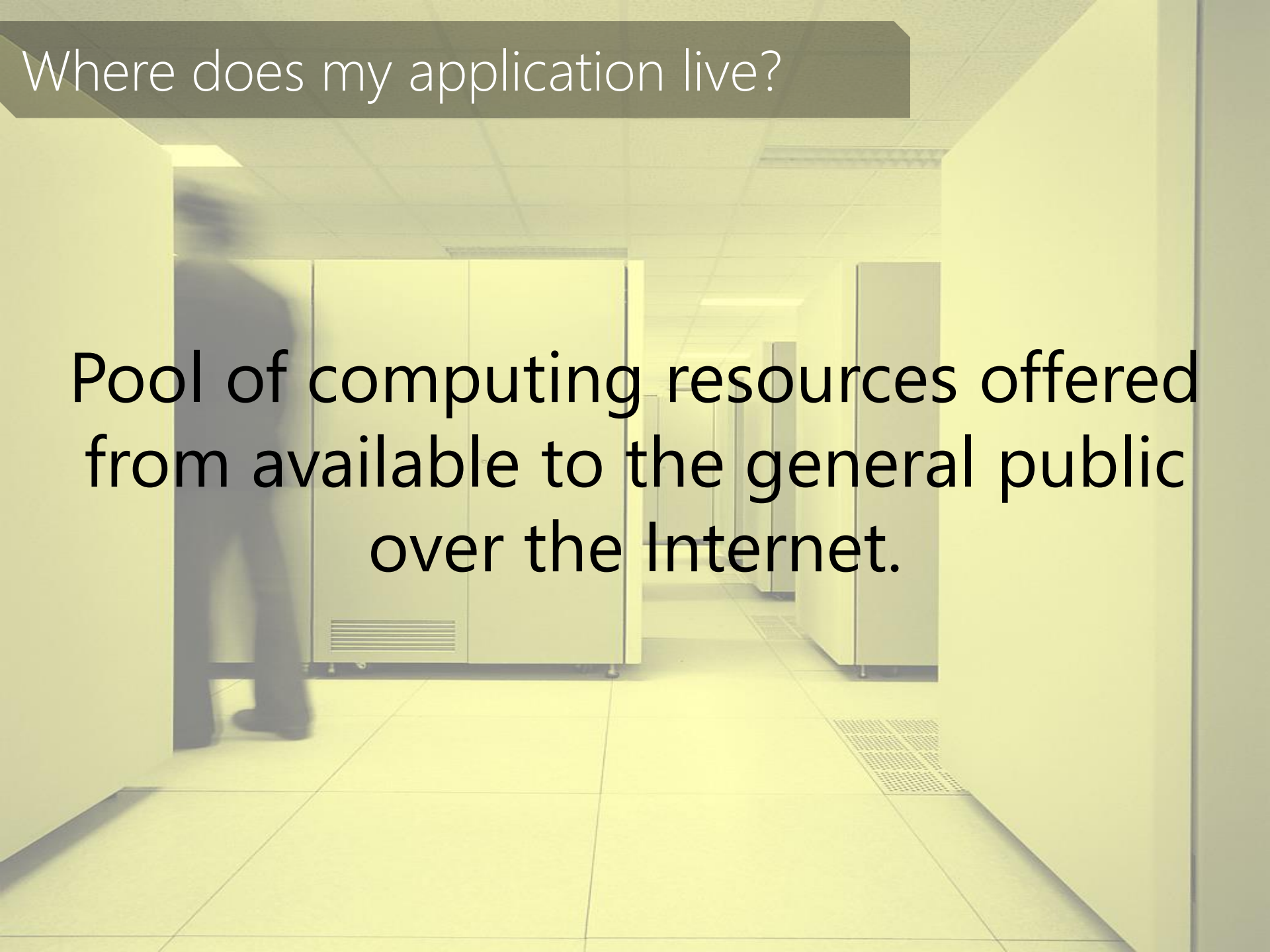
Where does my application live?



Pool of computing resources that lives within a datacenter with no sharing

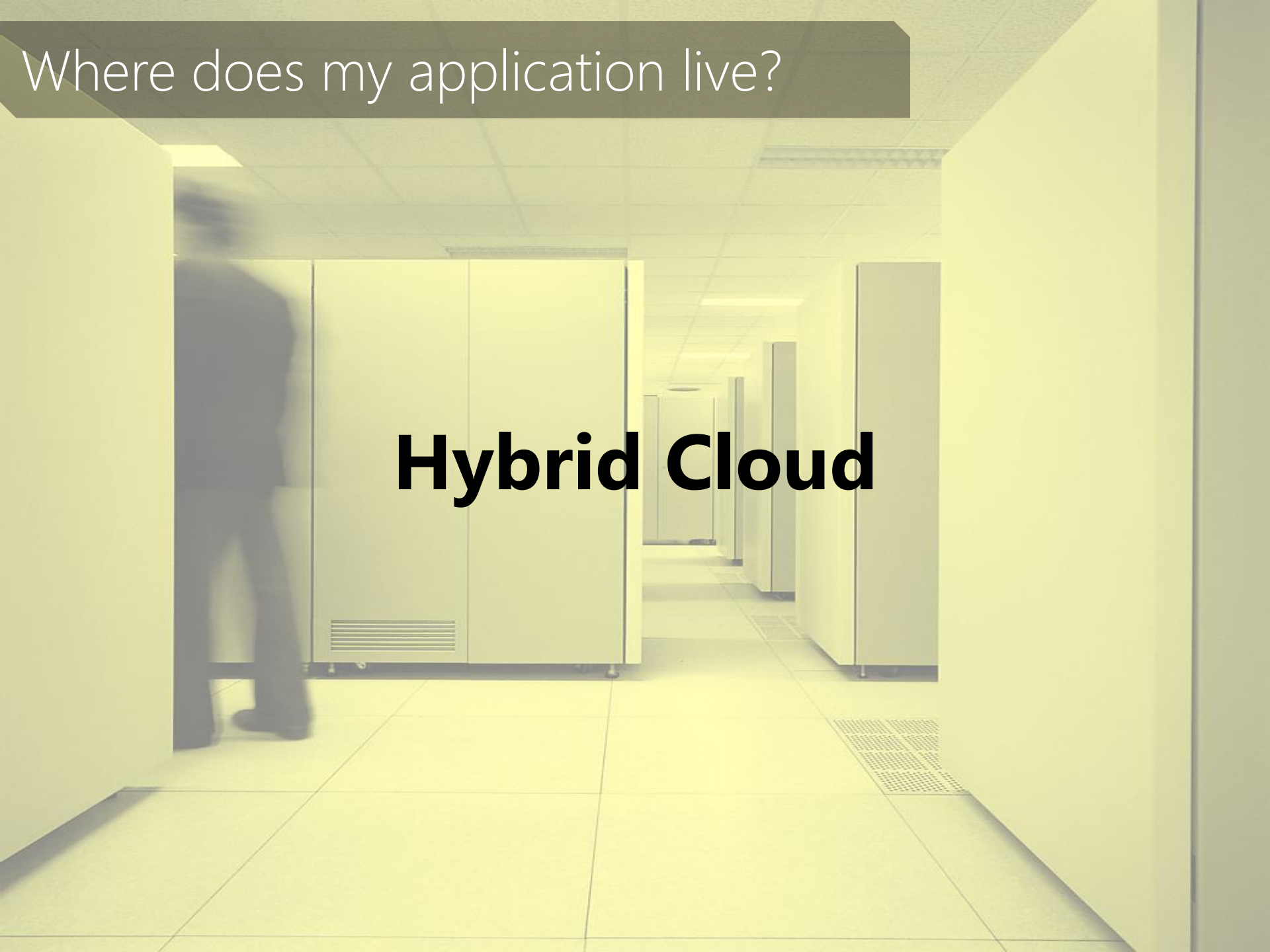
Where does my application live?

Where does my application live?



Pool of computing resources offered from available to the general public over the Internet.

Where does my application live?



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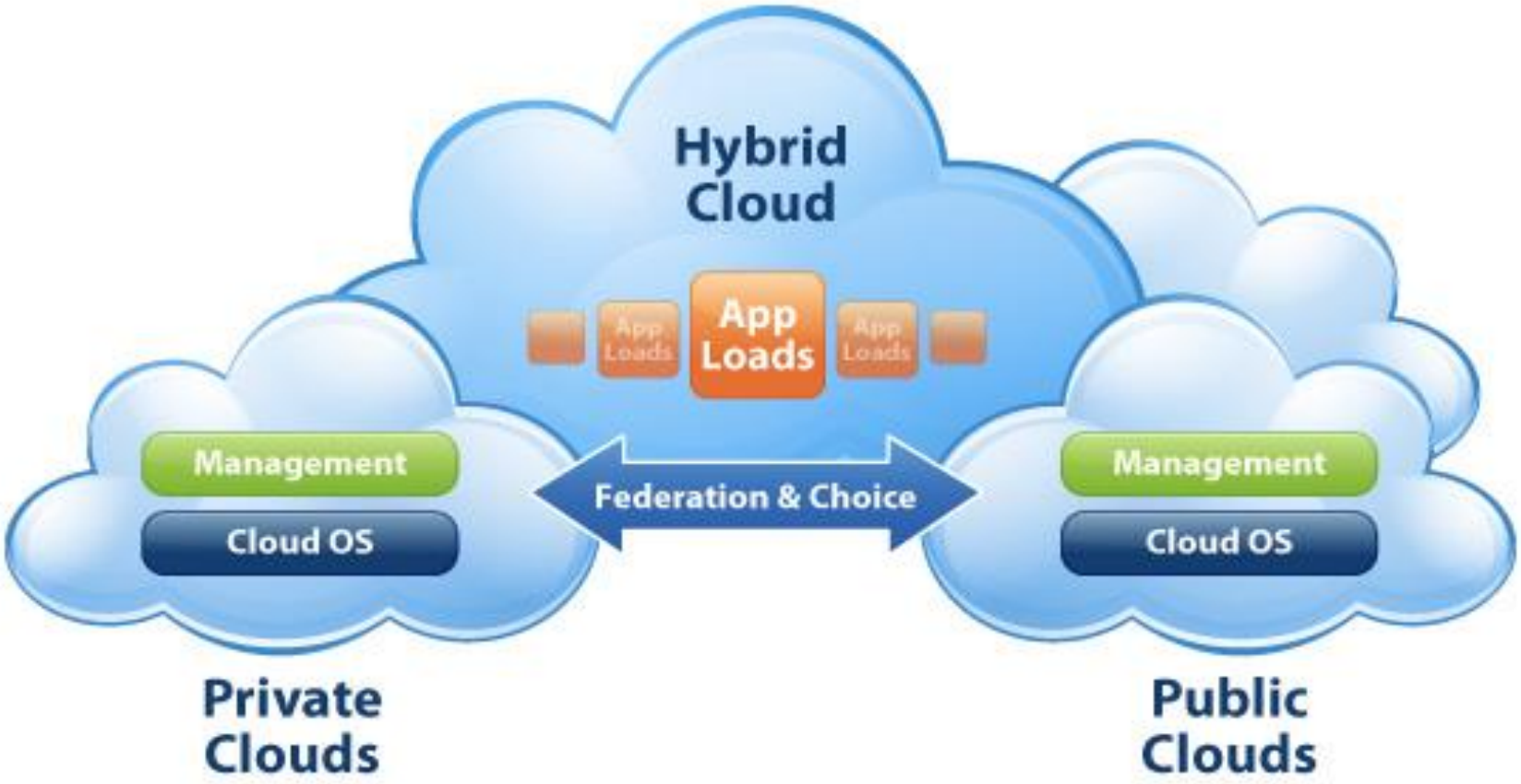
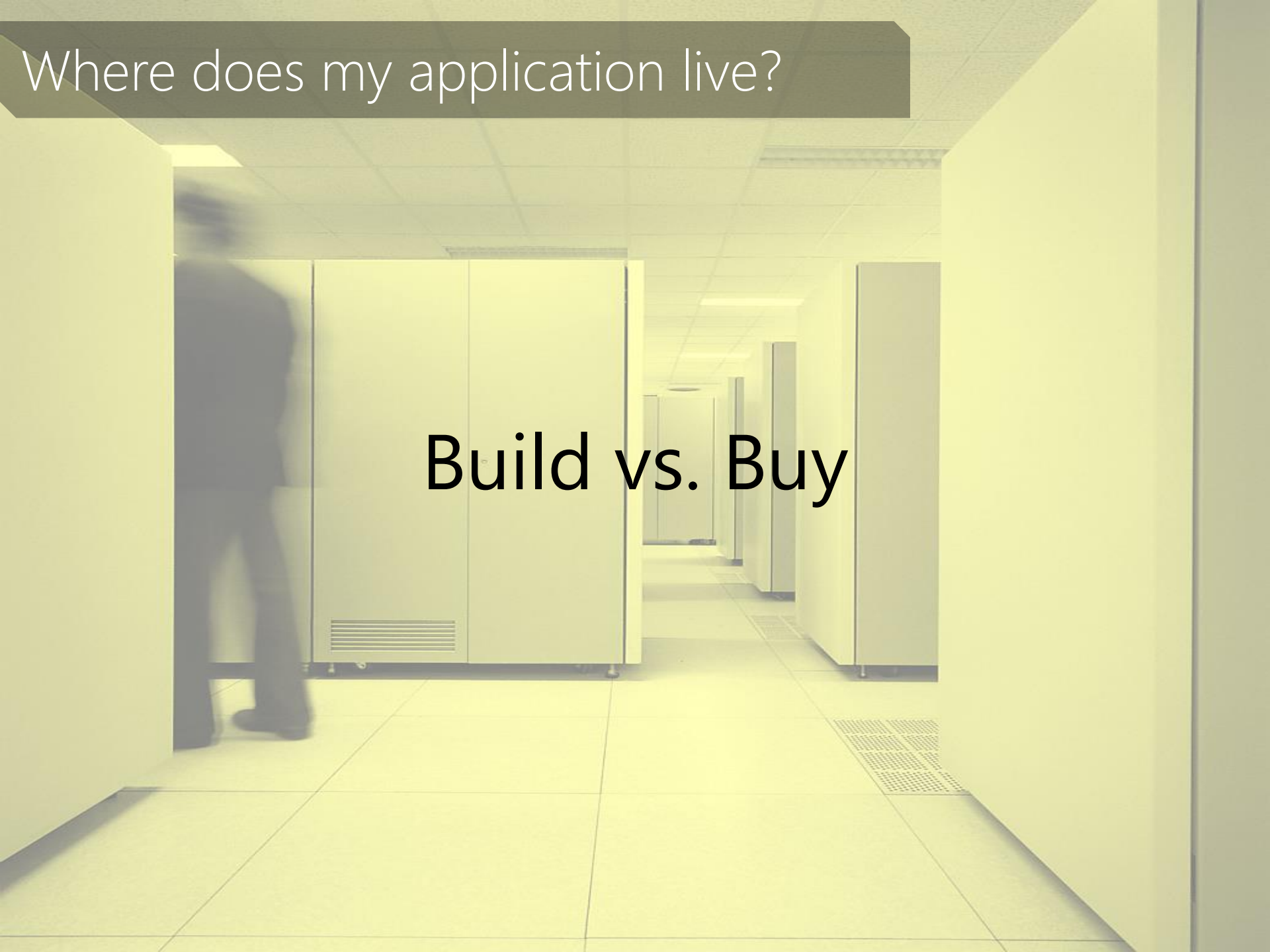


Where does my application live?

Jim now understands the **style** of an application, and where it **lives**, but who creates the application?

Where does my application live?



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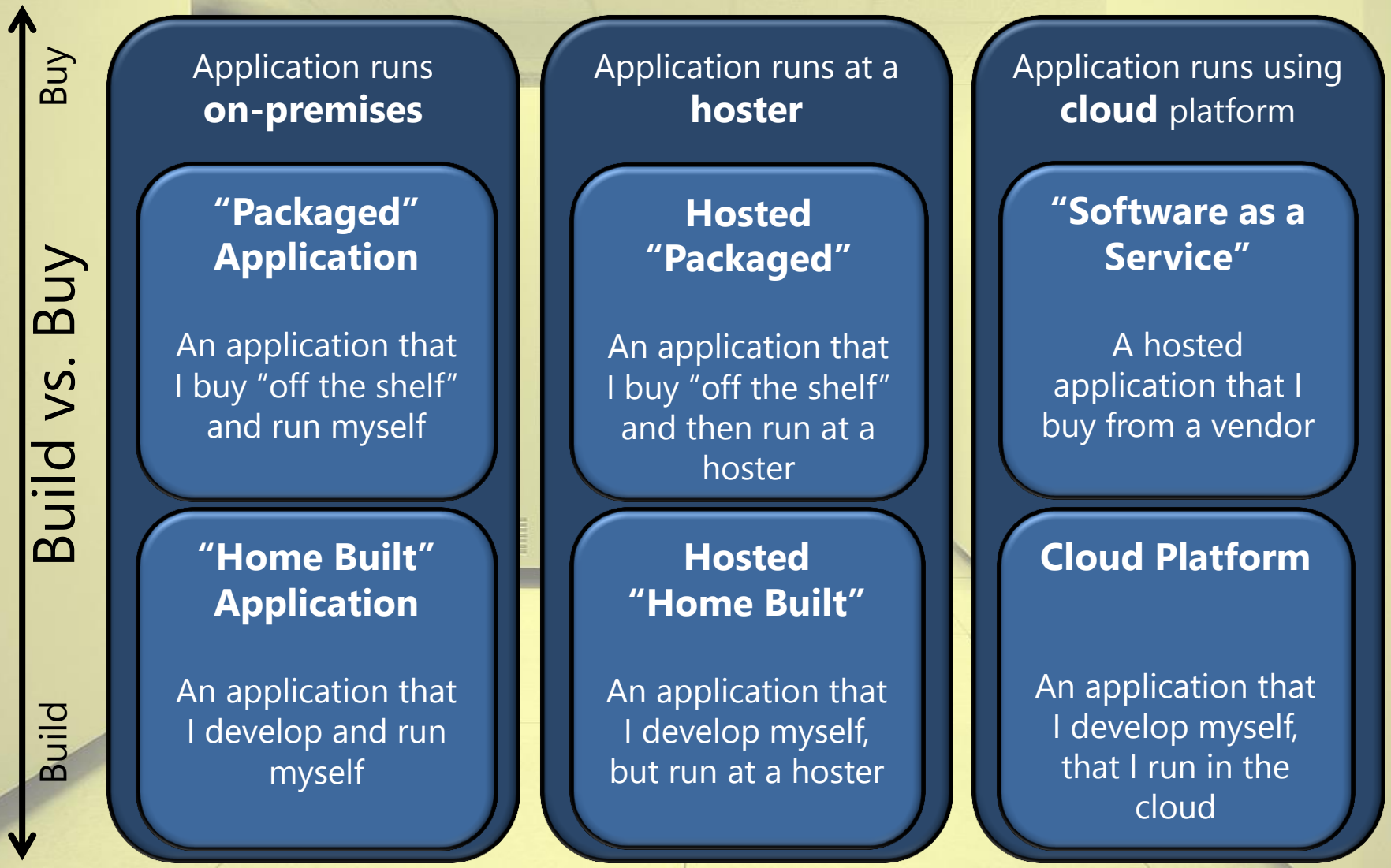
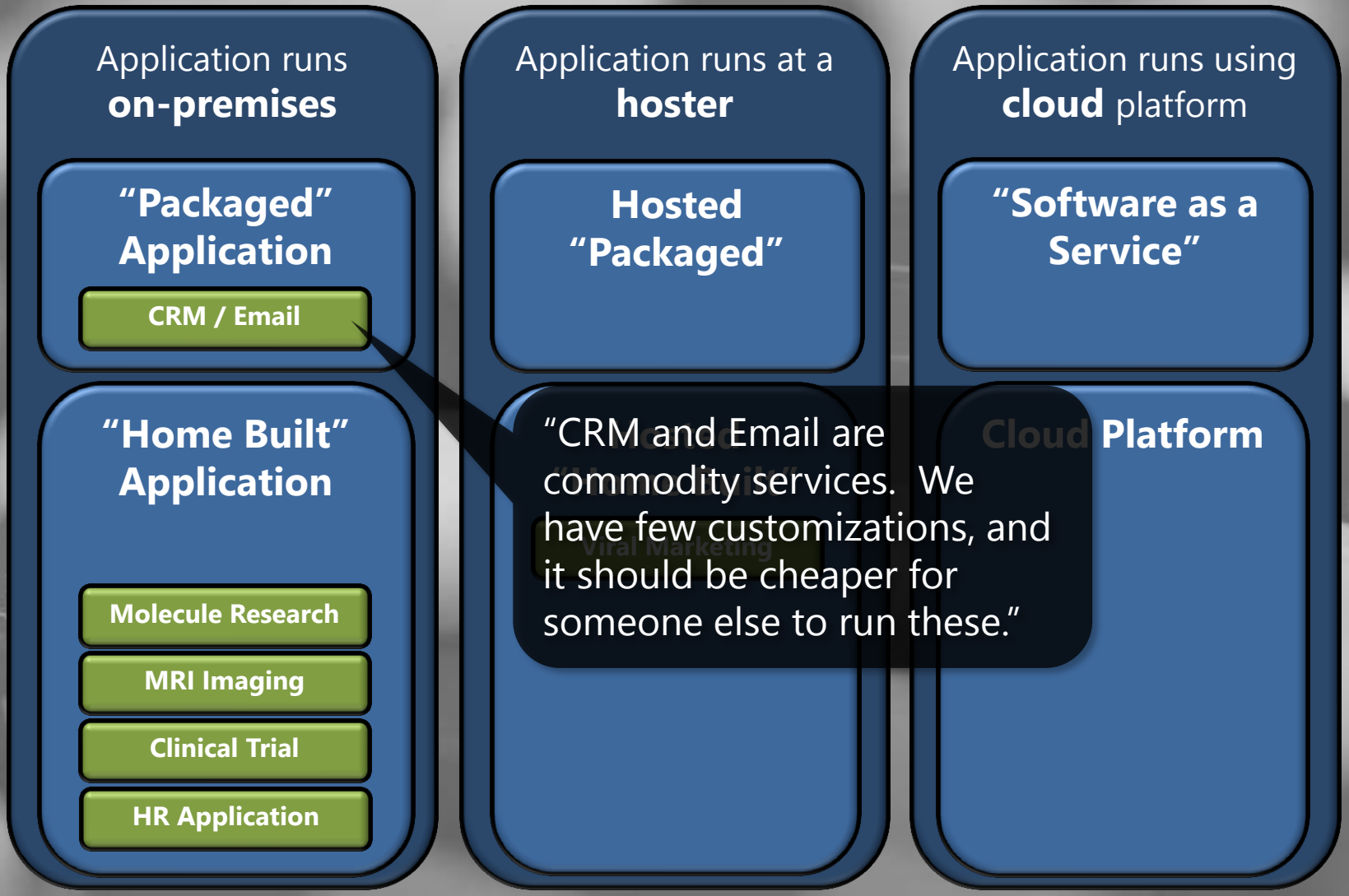


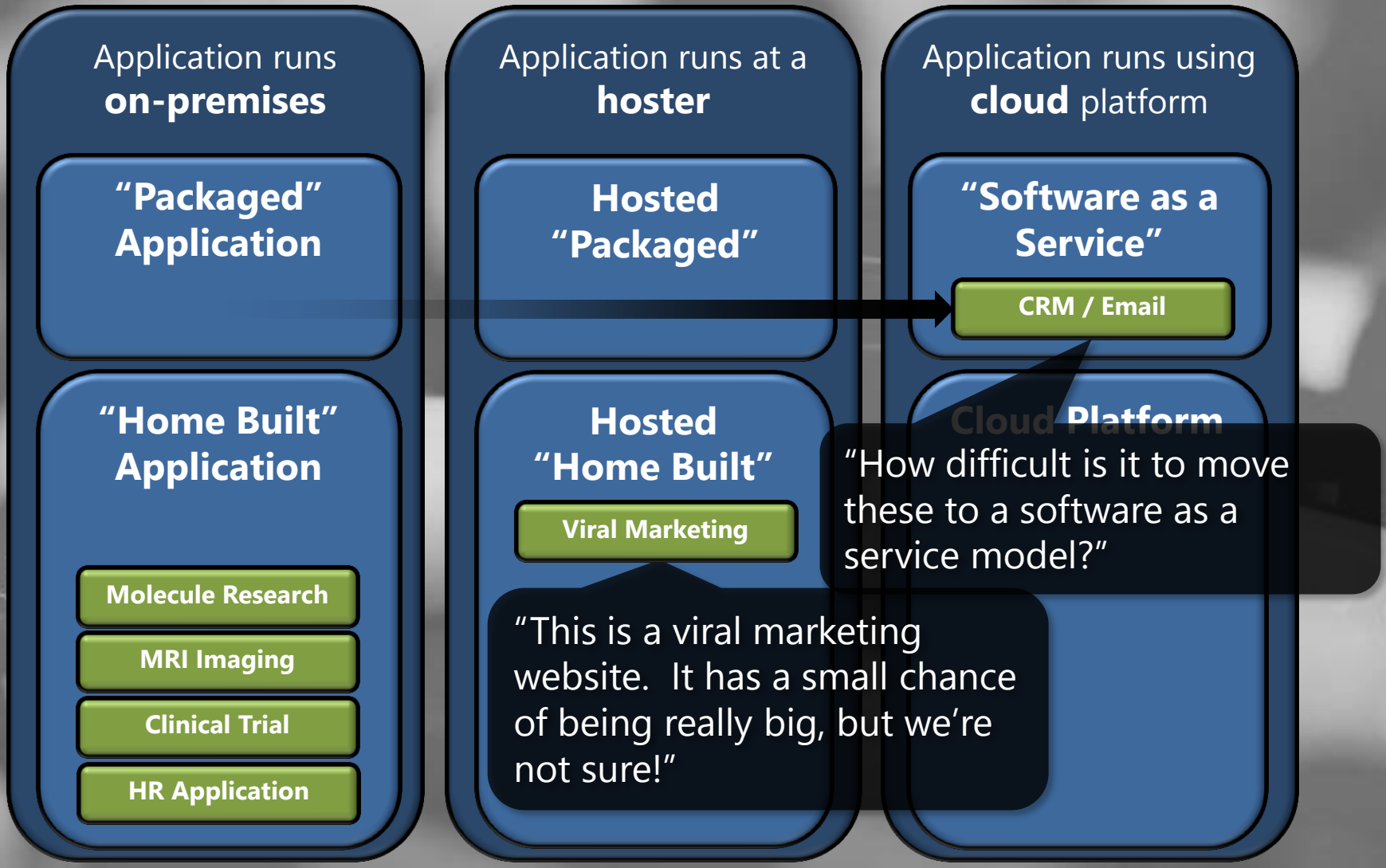
Where does my application live?

"Nice diagrams so far…
…but, what about **my** applications?"

Jim's Applications



Jim's Applications



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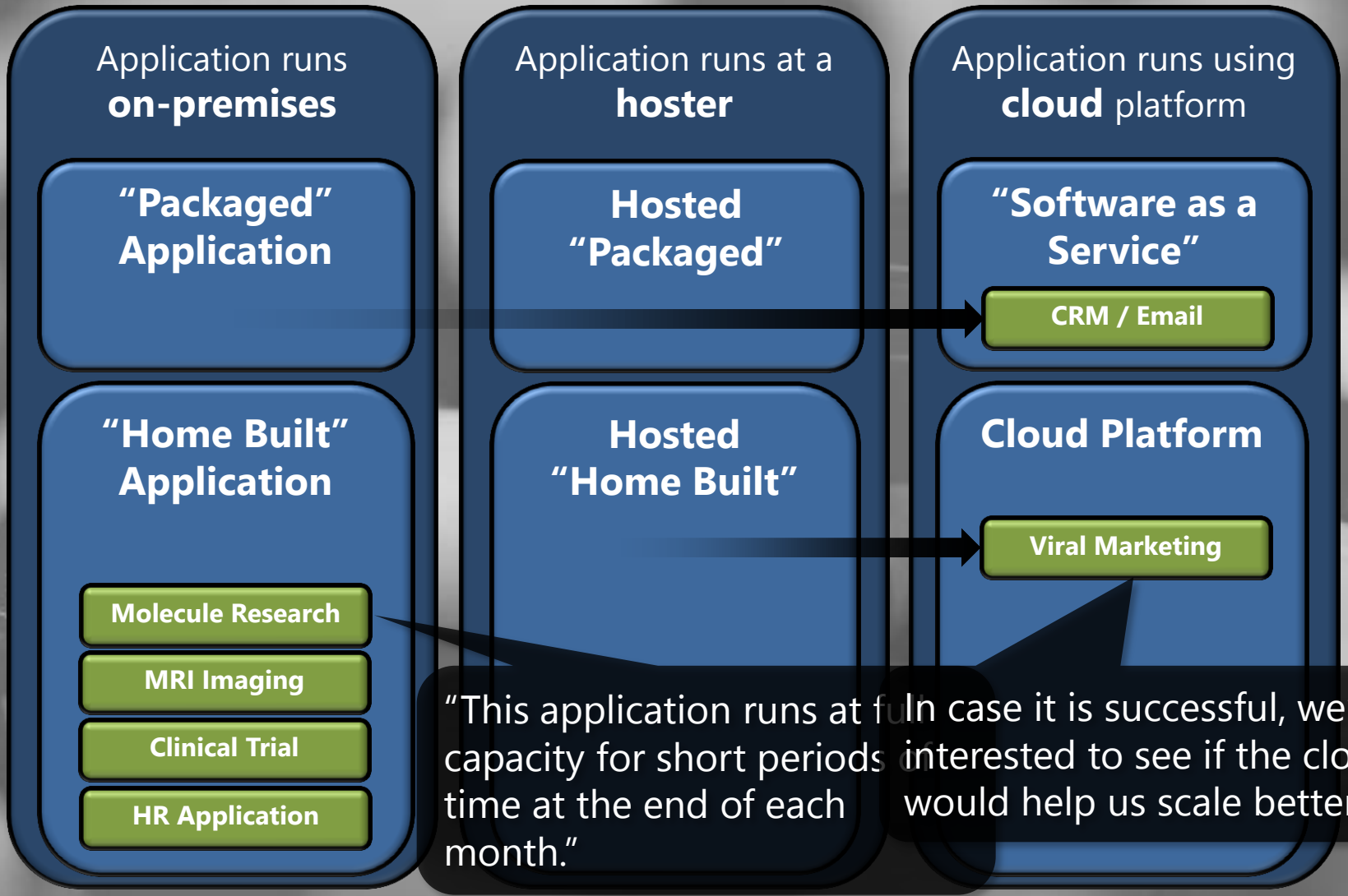

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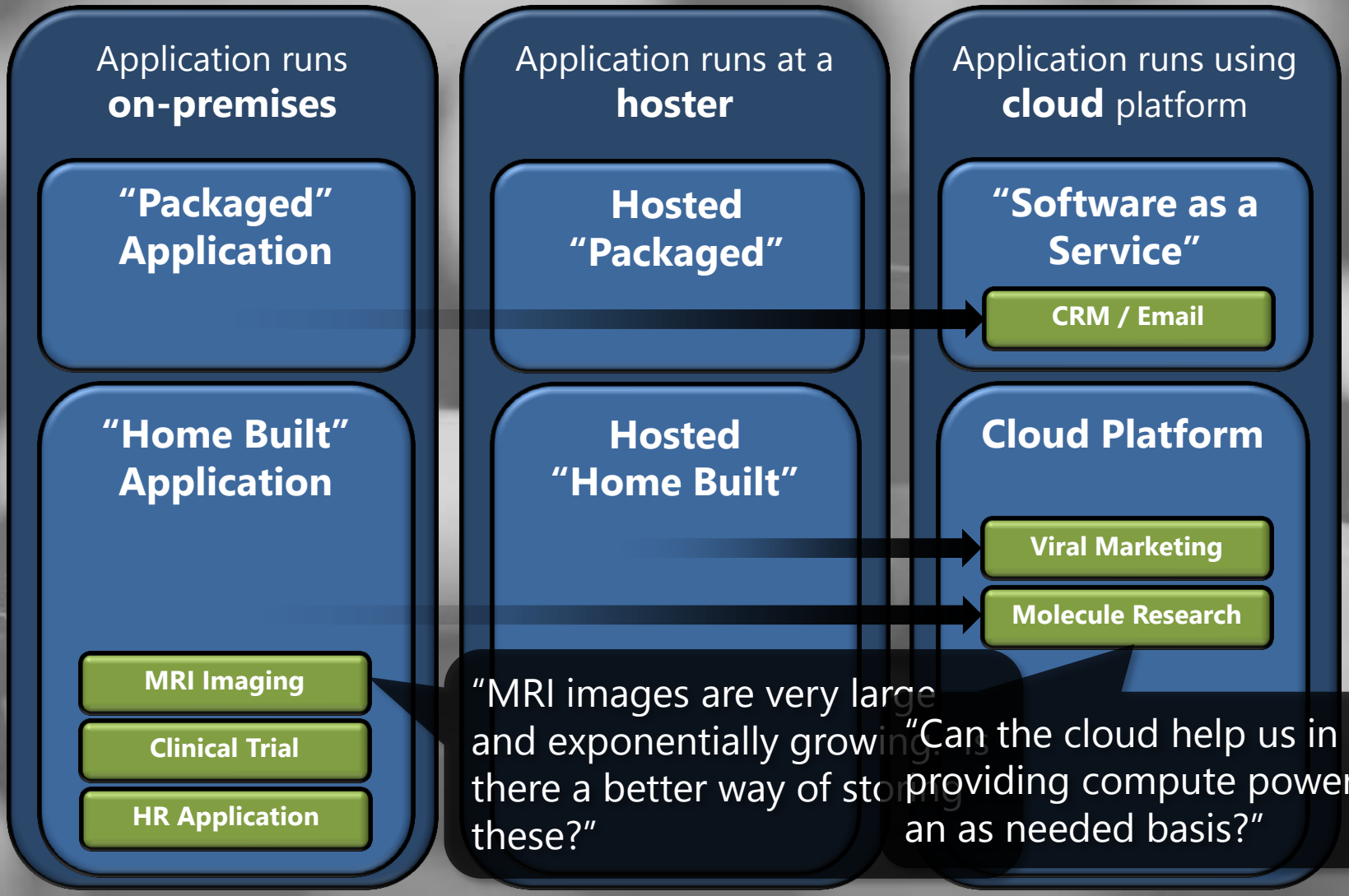

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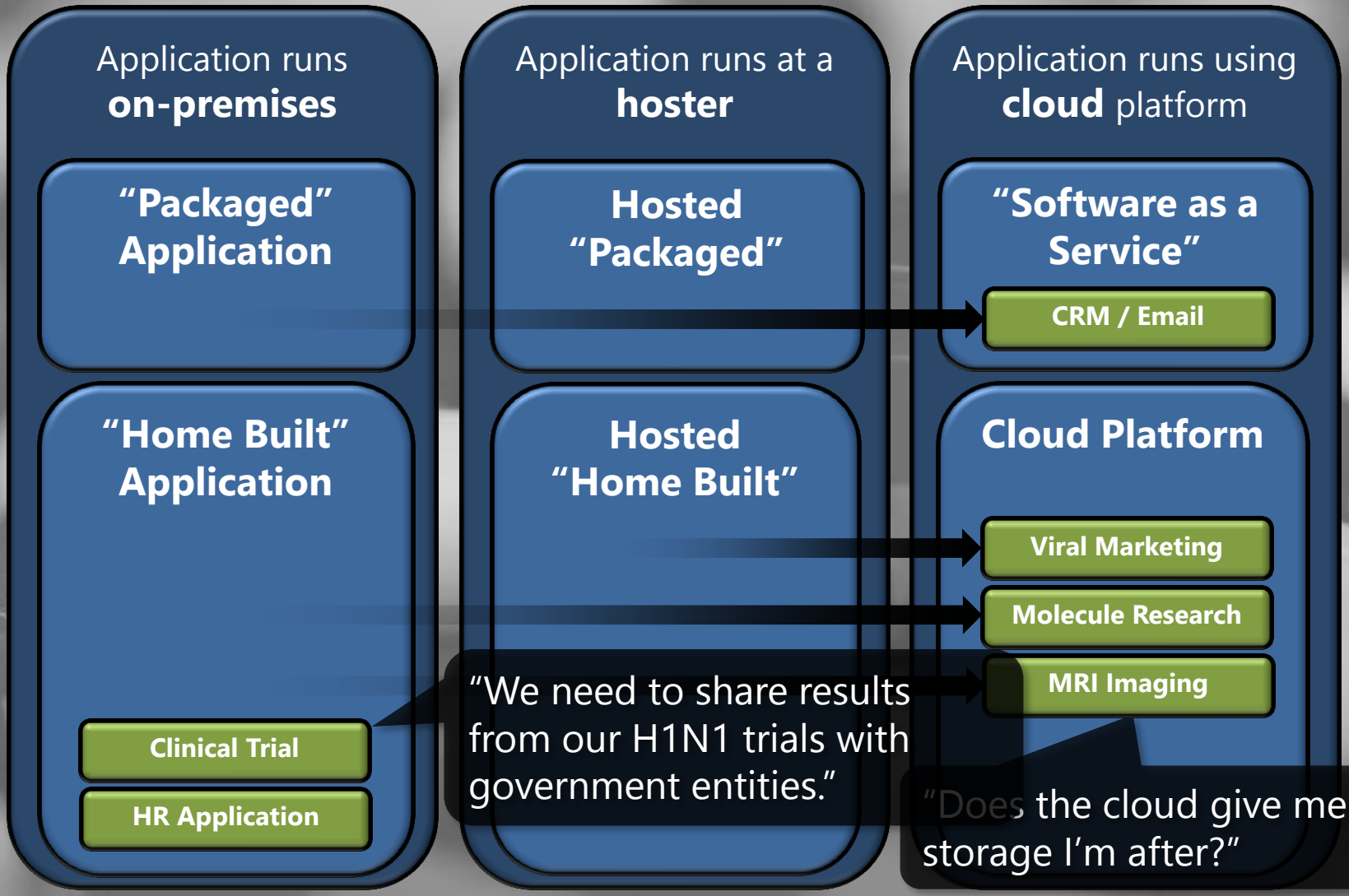
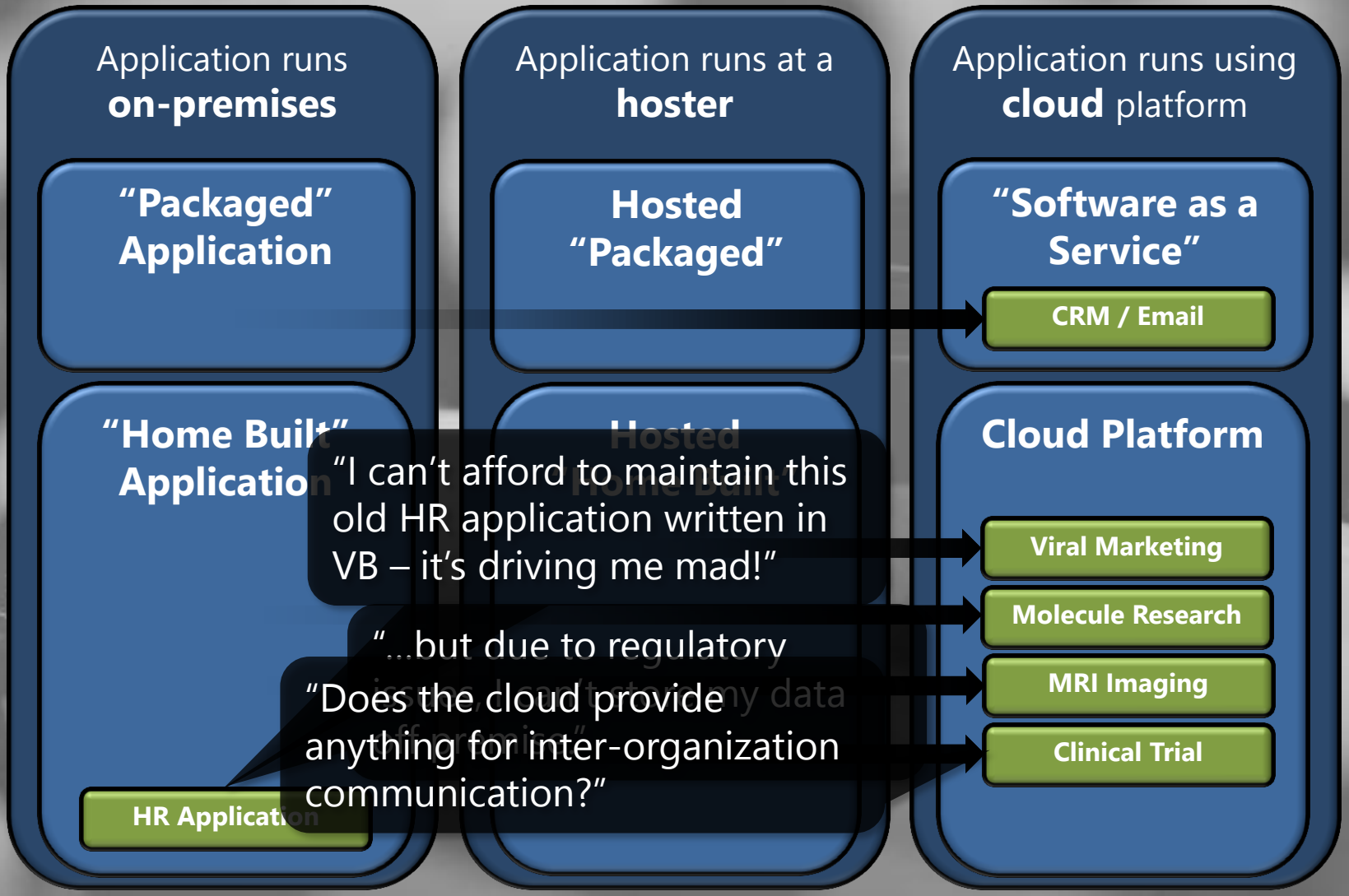
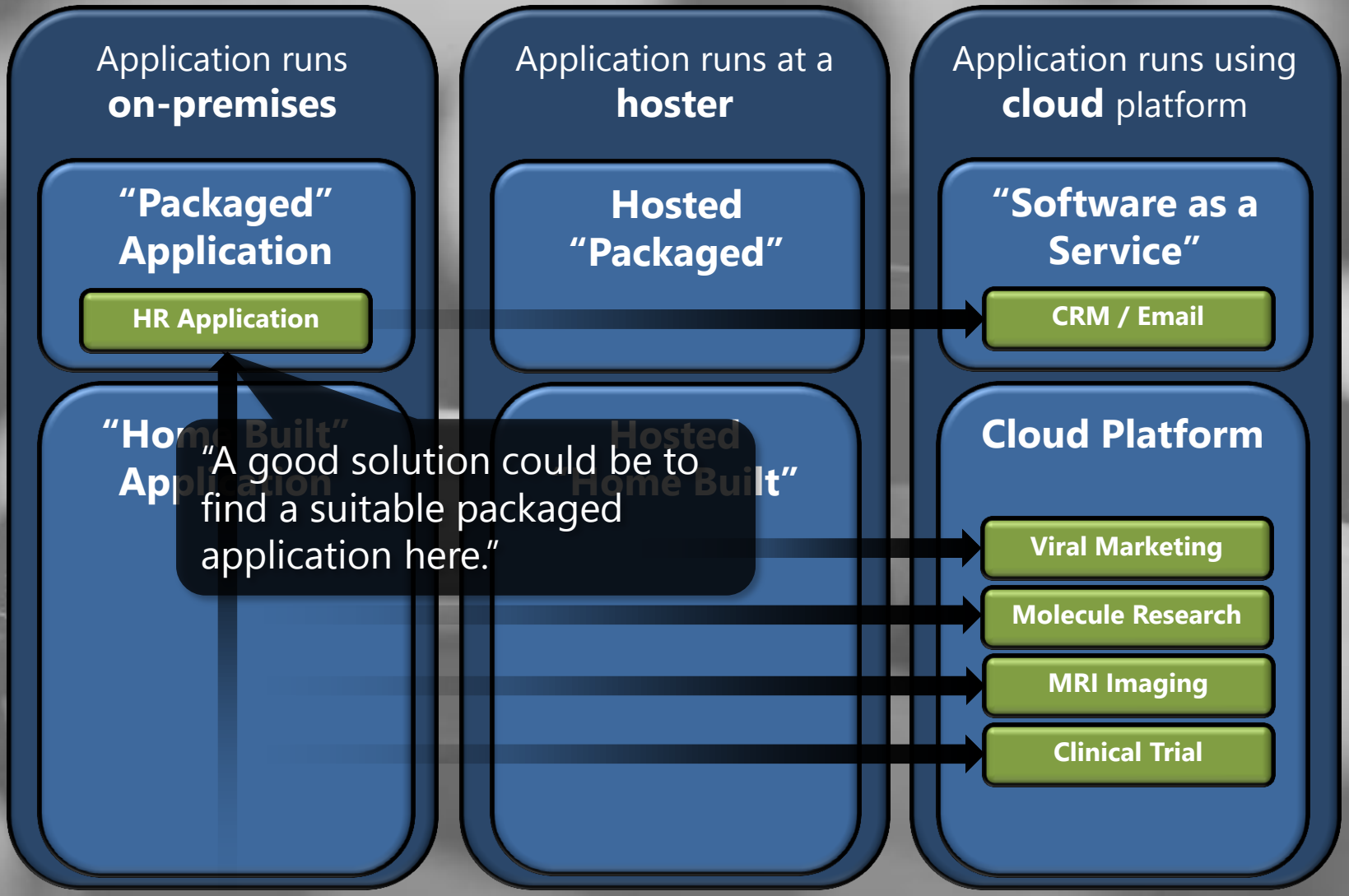


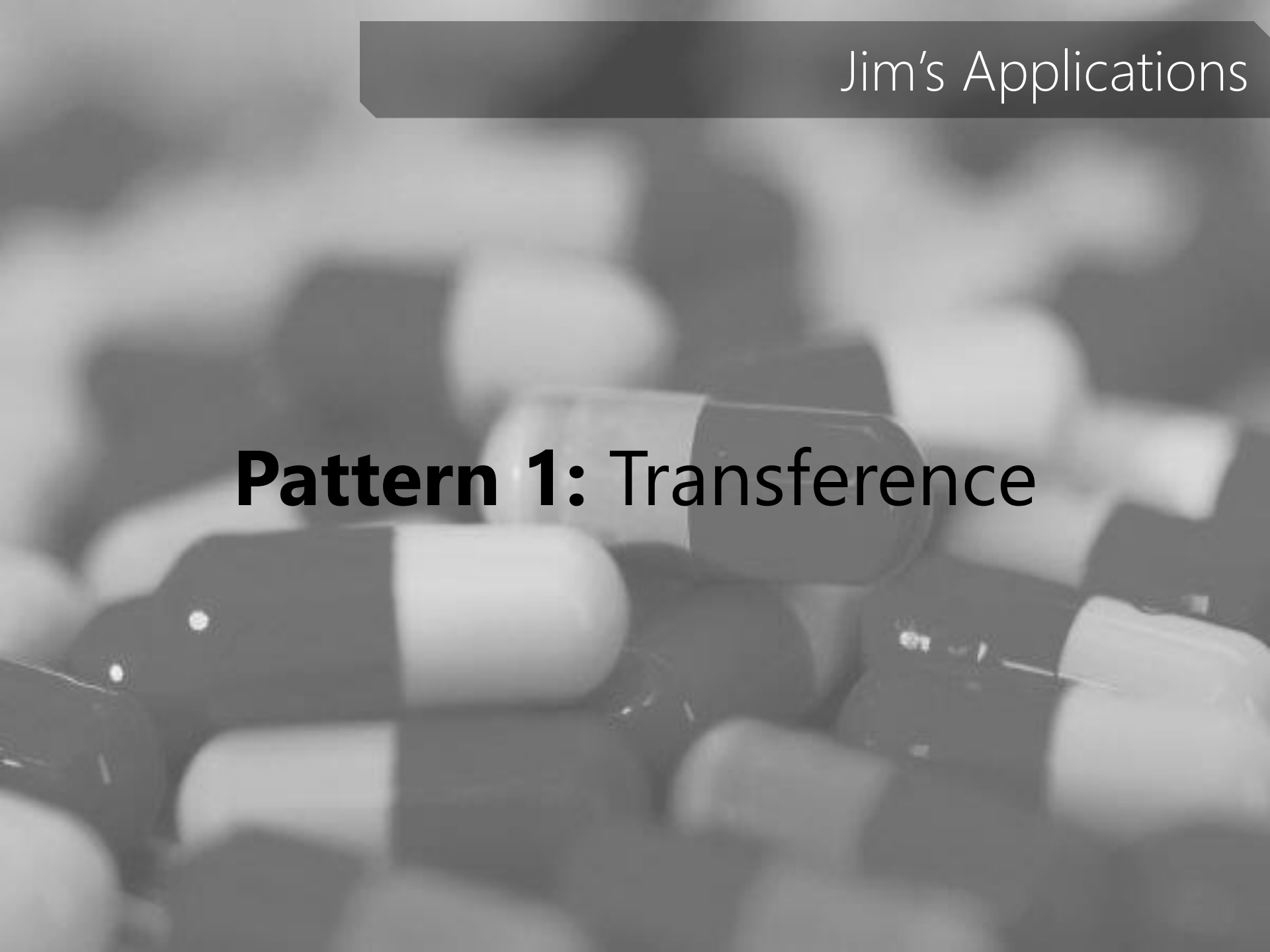
Jim's Applications



Jim's Applications



Jim's Applications

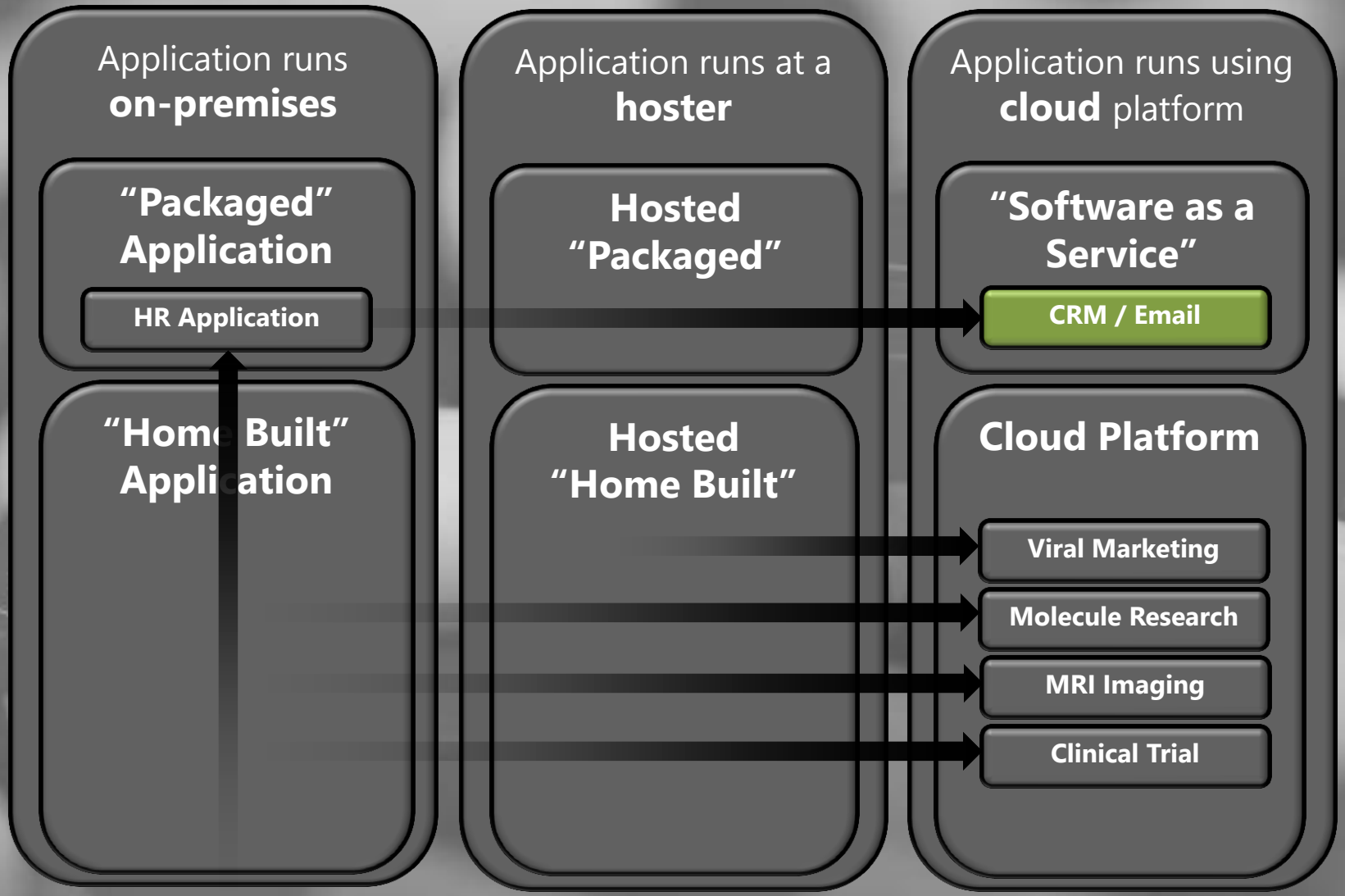


Pattern 1: Transference

Jim's Applications

Taking an existing on-premises application and moving it to the cloud

Jim's Applications



Drivers?

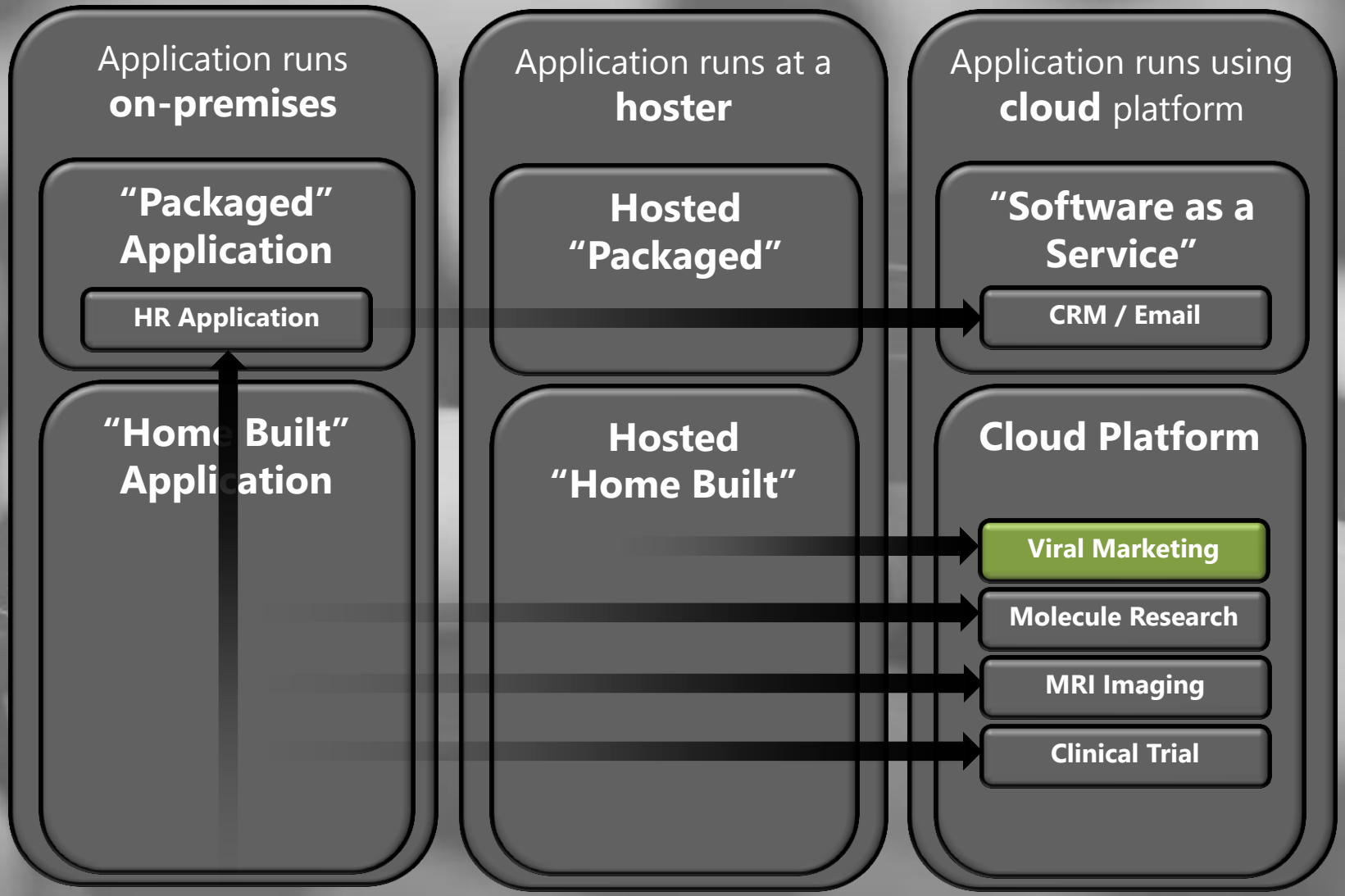
Economic, Consolidation, Prototyping

Pattern 2: Scale and Multi-Tenancy

Jim's Applications

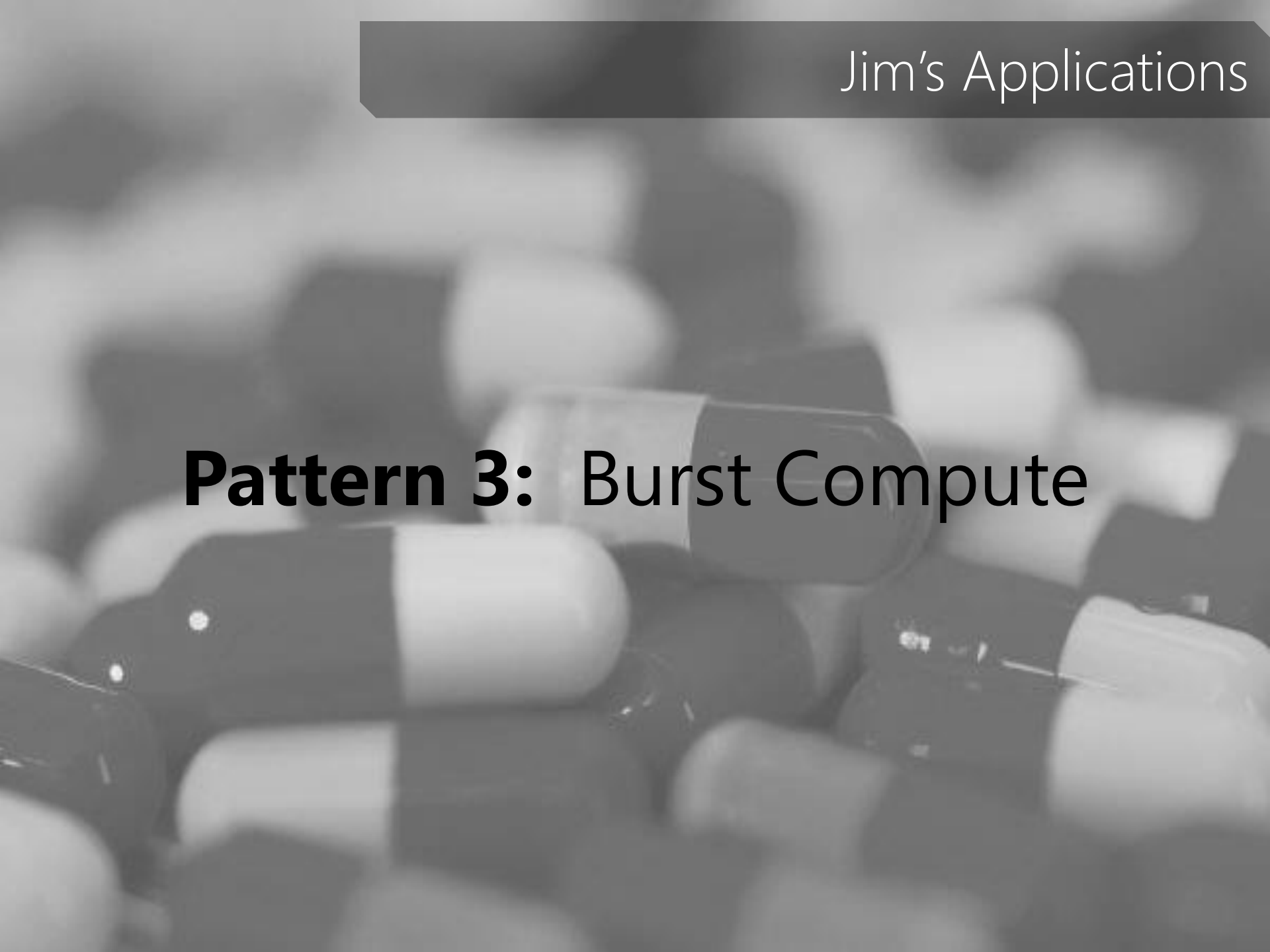
Creating an application that has the ability to handle web load without requiring the full capital investment from day one

Jim's Applications



Drivers?

Prototyping, Risk Mitigation

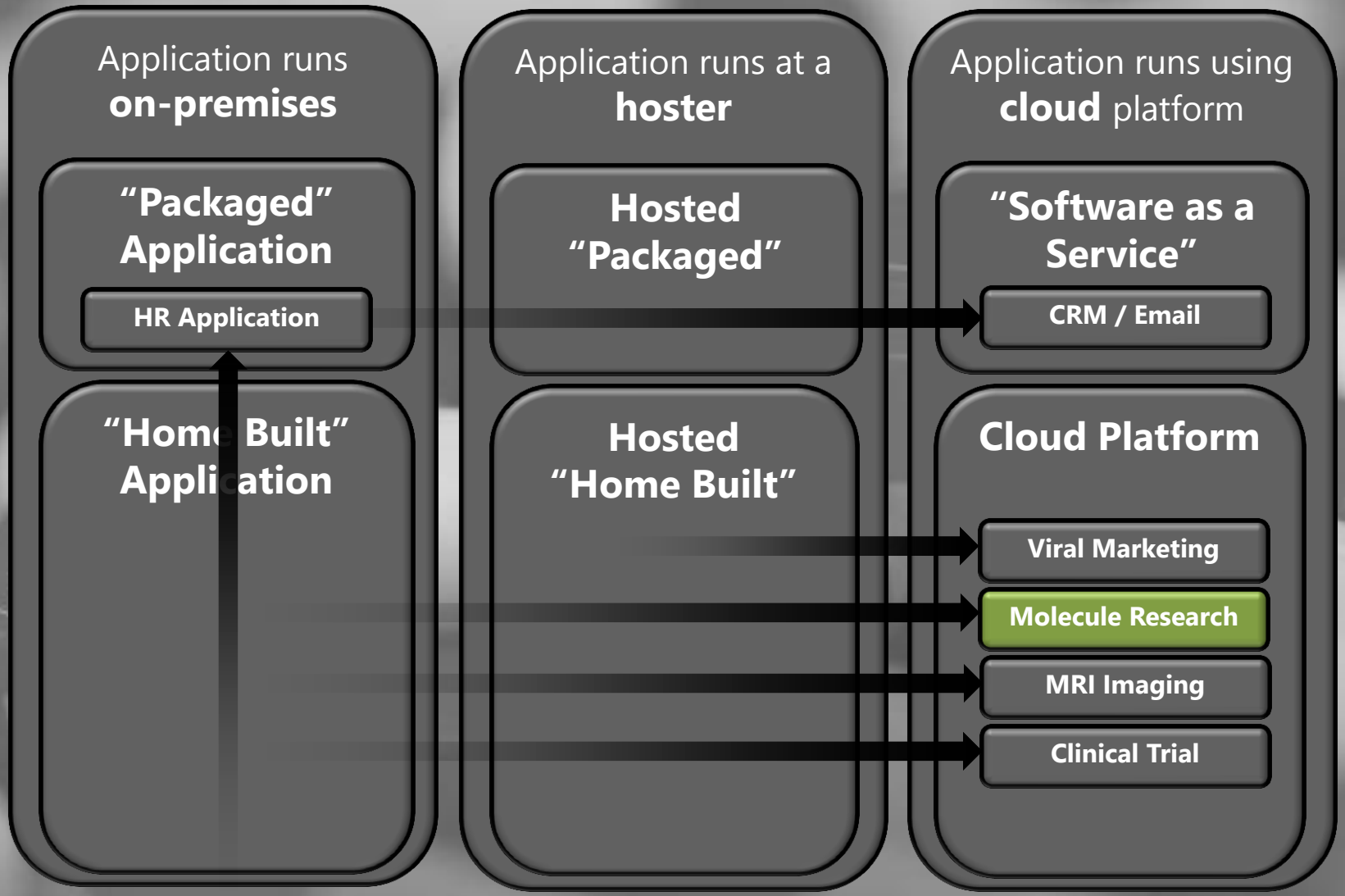


Pattern 3: Burst Compute

Jim's Applications

Creating an application that has the ability to handle additional compute on an as-needed basis

Jim's Applications



Drivers?

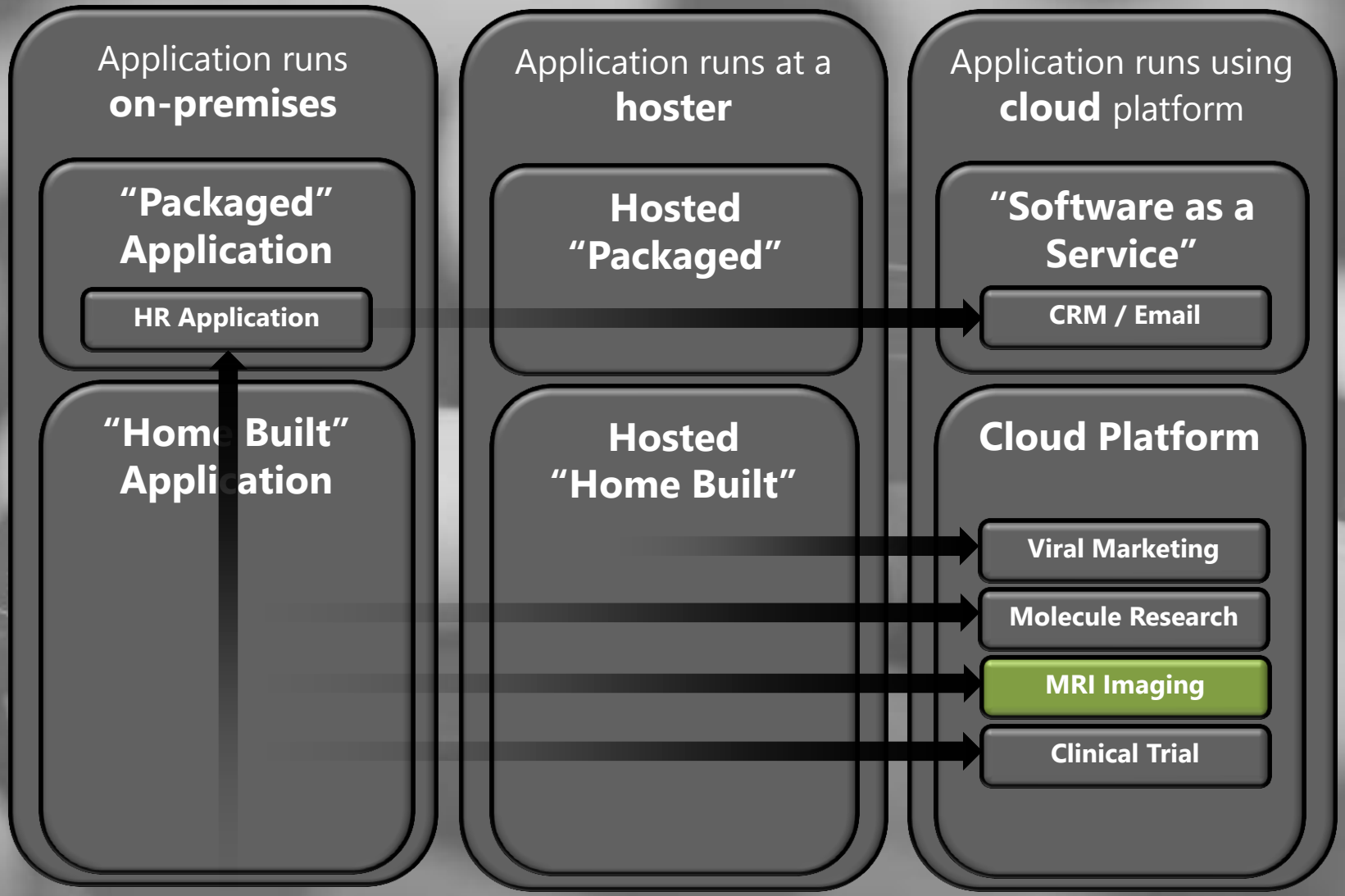
Economic (avoiding over capacity)

Pattern 4: Elastic Storage

Jim's Applications

Creating an application that has the ability to grow exponentially from a storage perspective

Jim's Applications



Drivers?

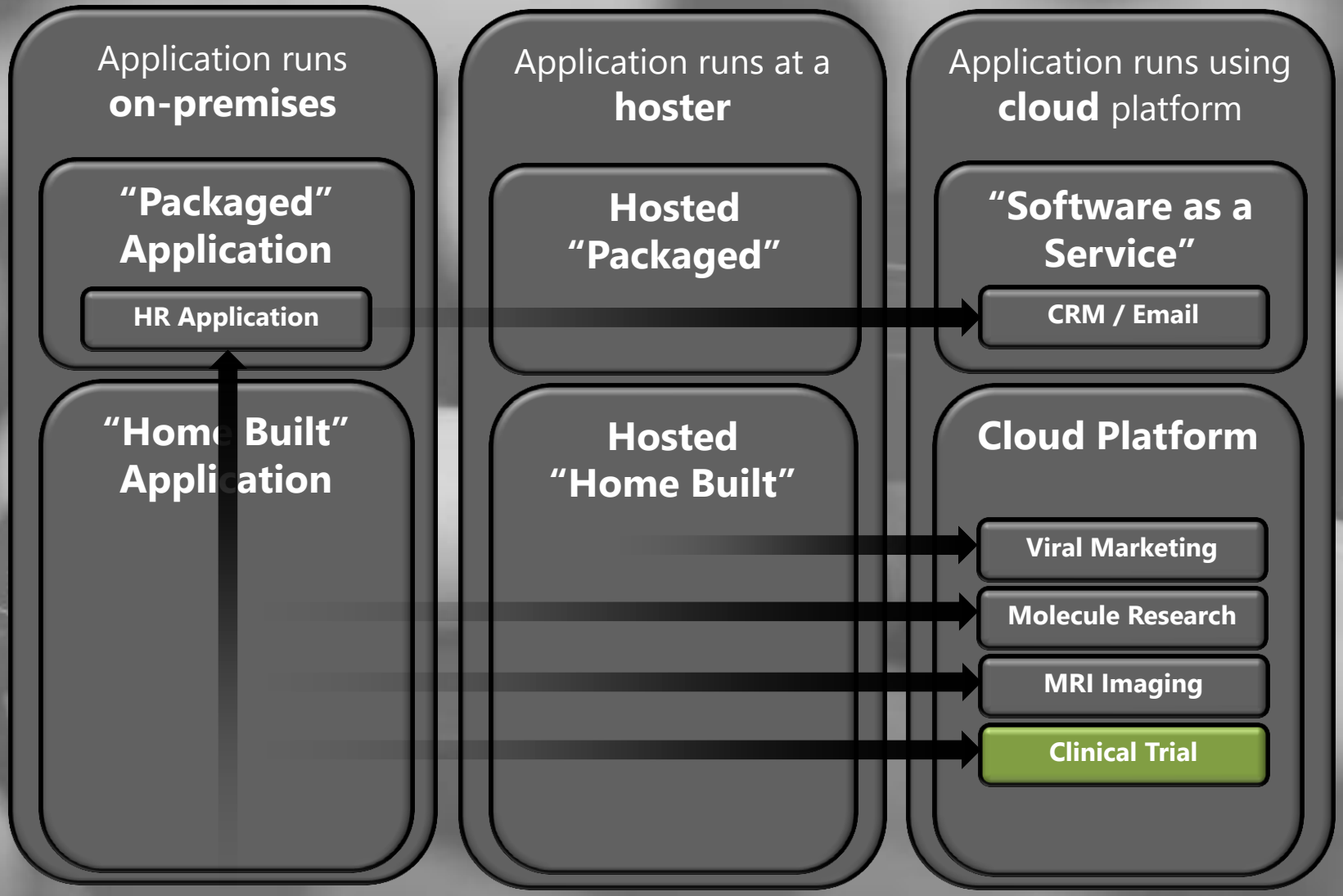
Economic (avoiding over capacity), Management

Pattern 5: Communications

Jim's Applications

Creating an application that has the ability to communicate between organizations using a pre-defined infrastructure

Jim's Applications



Drivers?
Infrastructure Management

Jim's Applications

From this exercise, Jim realizes…

Jim's Applications

Not all applications look the same in the cloud

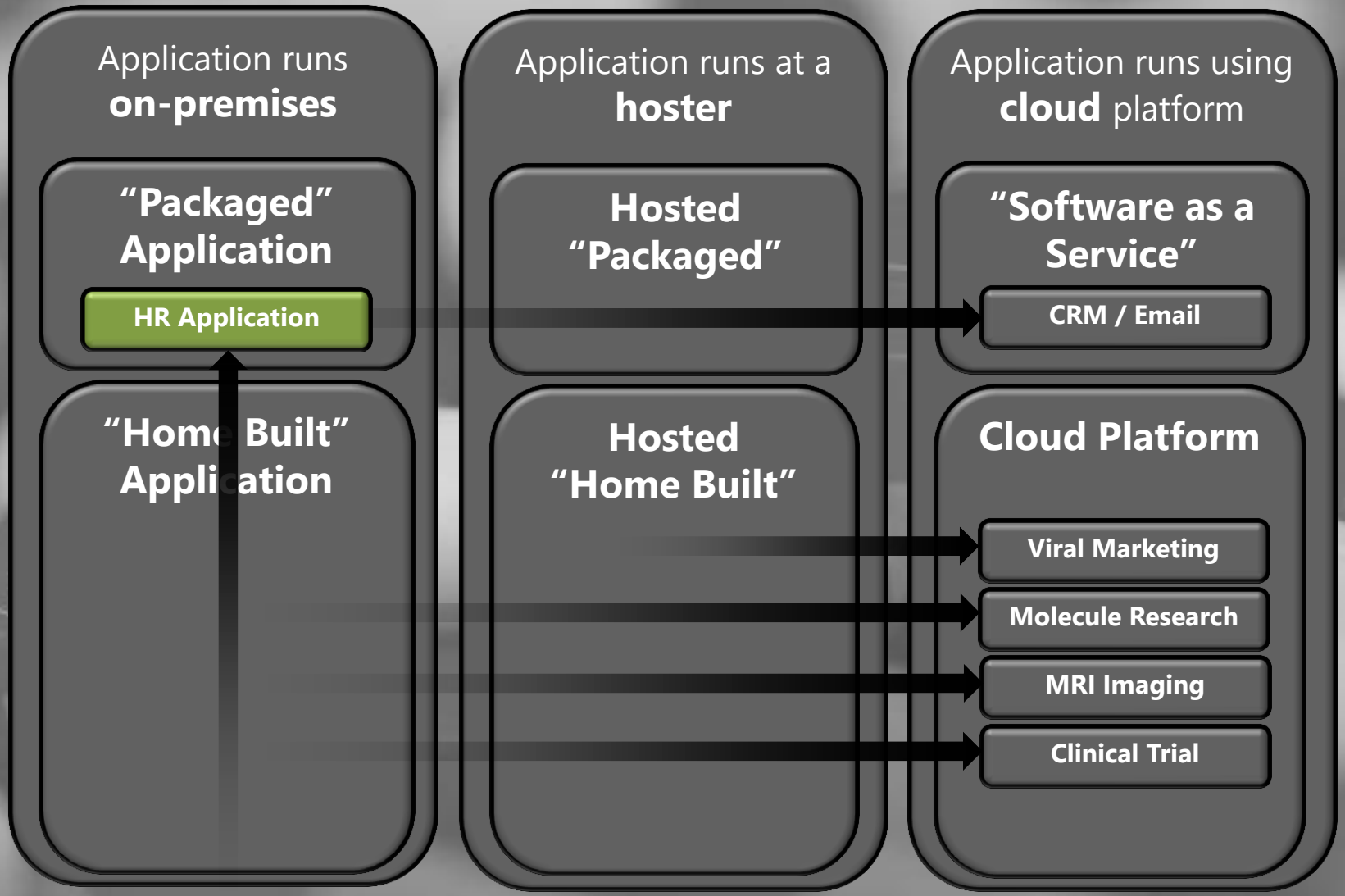
Jim's Applications

Instead, he must understand the drivers for moving (or creating) cloud based applications

Jim's Applications

Also, not everything makes sense in the cloud

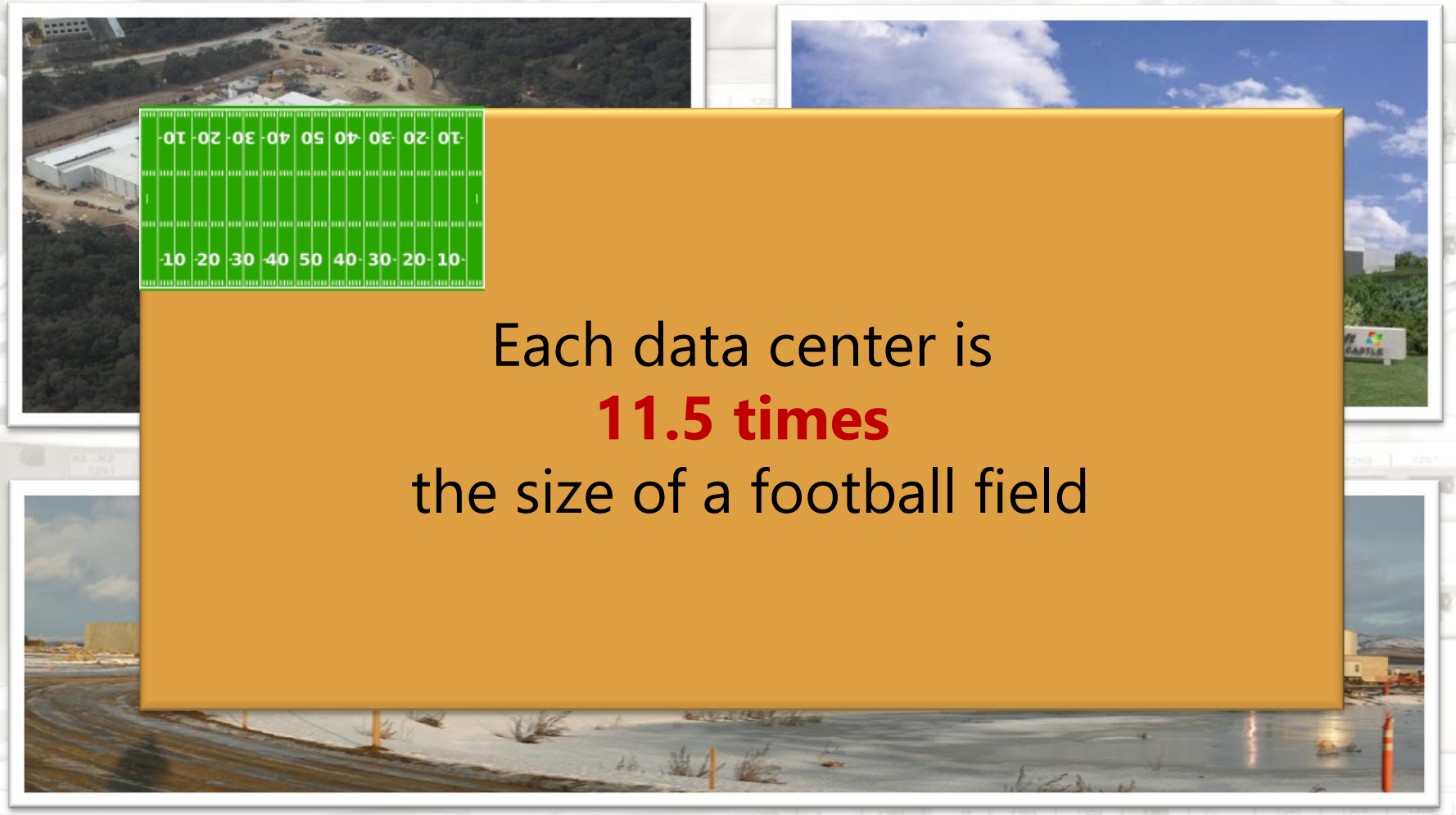
Jim's Applications



Jim's Applications

So, all of this looks great in PowerPoint
…but what else should Jim be considering?

Your datacenter is not like a cloud datacenter



Each data center is

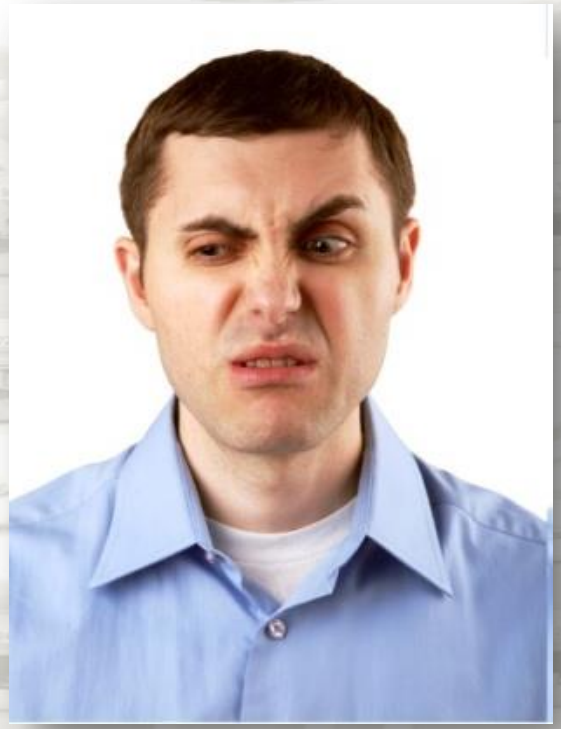
11.5 times

the size of a football field

Your datacenter is not like a cloud datacenter

When you have this many machines to look after, the rules change

Your datacenter is not like a cloud datacenter



Jim's development team needs to think differently about app architecture and models in the Cloud.