The Cloud is an Attitude, Not a Place

Ian Miller

Spatial Vision
Creative sustainable solutions

Cloud Hosted
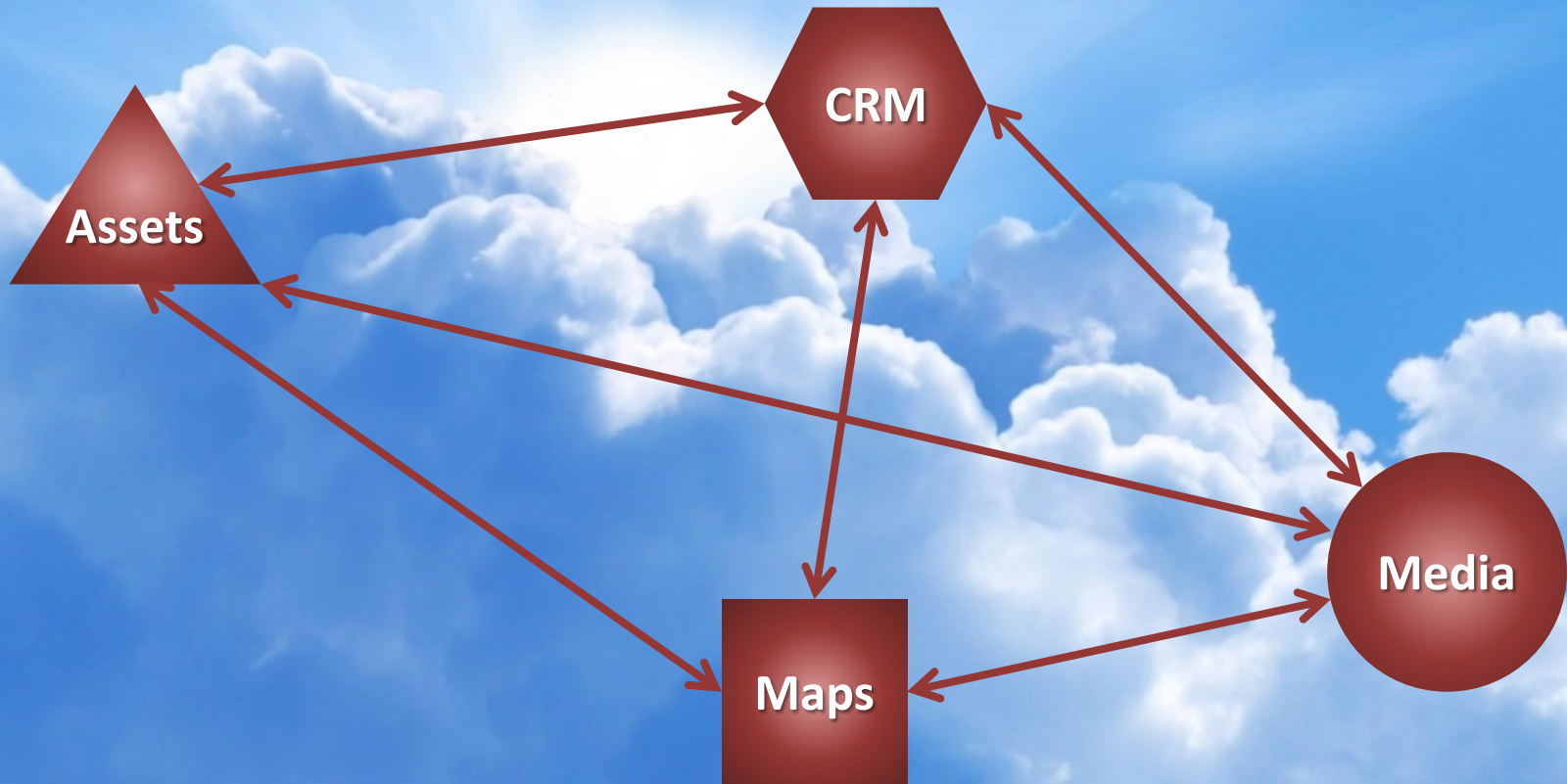
Data?

Software

Platform

Infrastructure

capsule

CARTODB
Geospatial on the cloud

Office 365

Arc
ESRI
GIS

GIS

Windows Azure

amazon
web services

Google
App Engine

heroku

ninefold

IT'S HOW
WE CONNECT

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

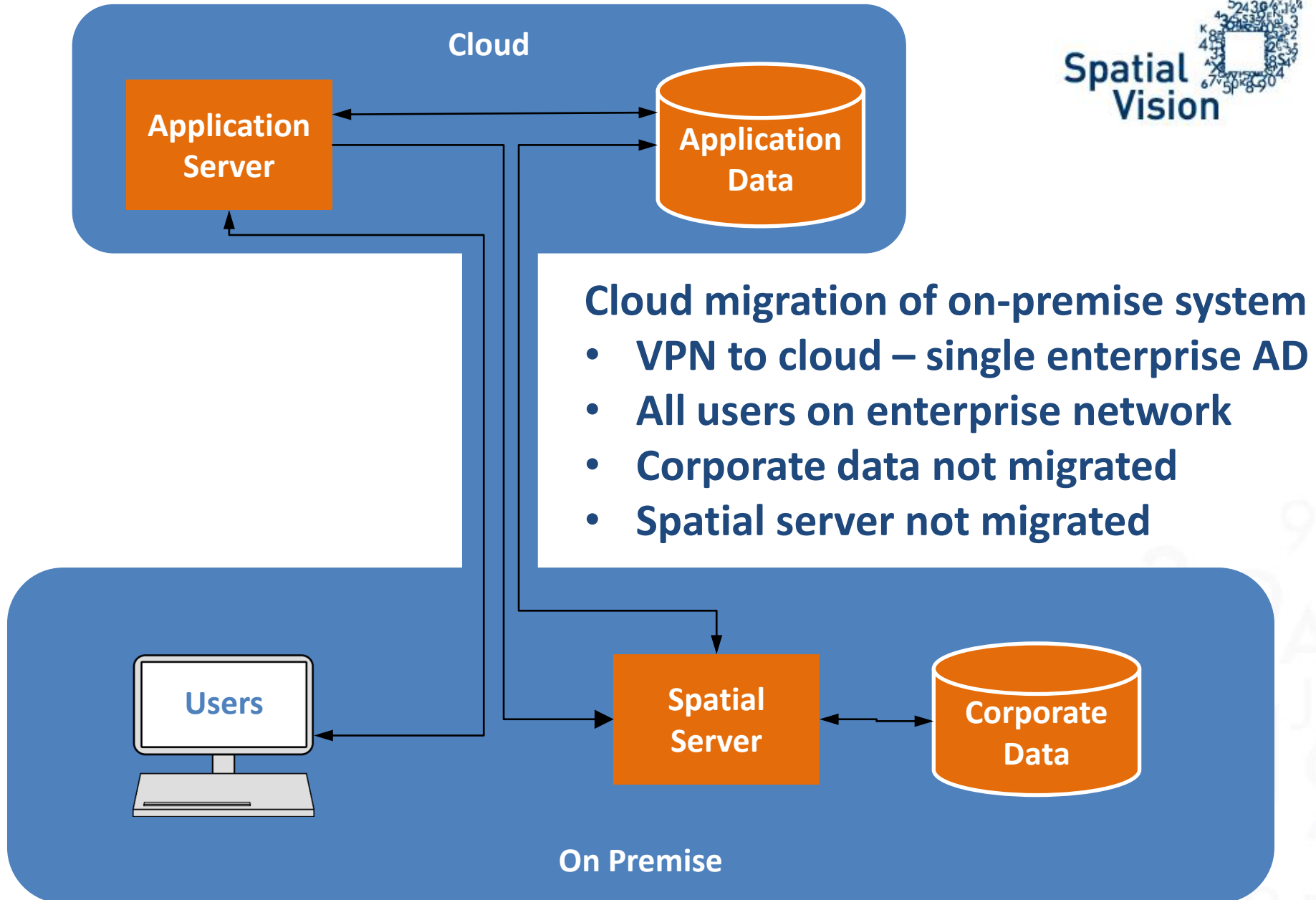Managed by customer   Managed by vendor

Most enterprise cloud projects at present focussed on IaaS

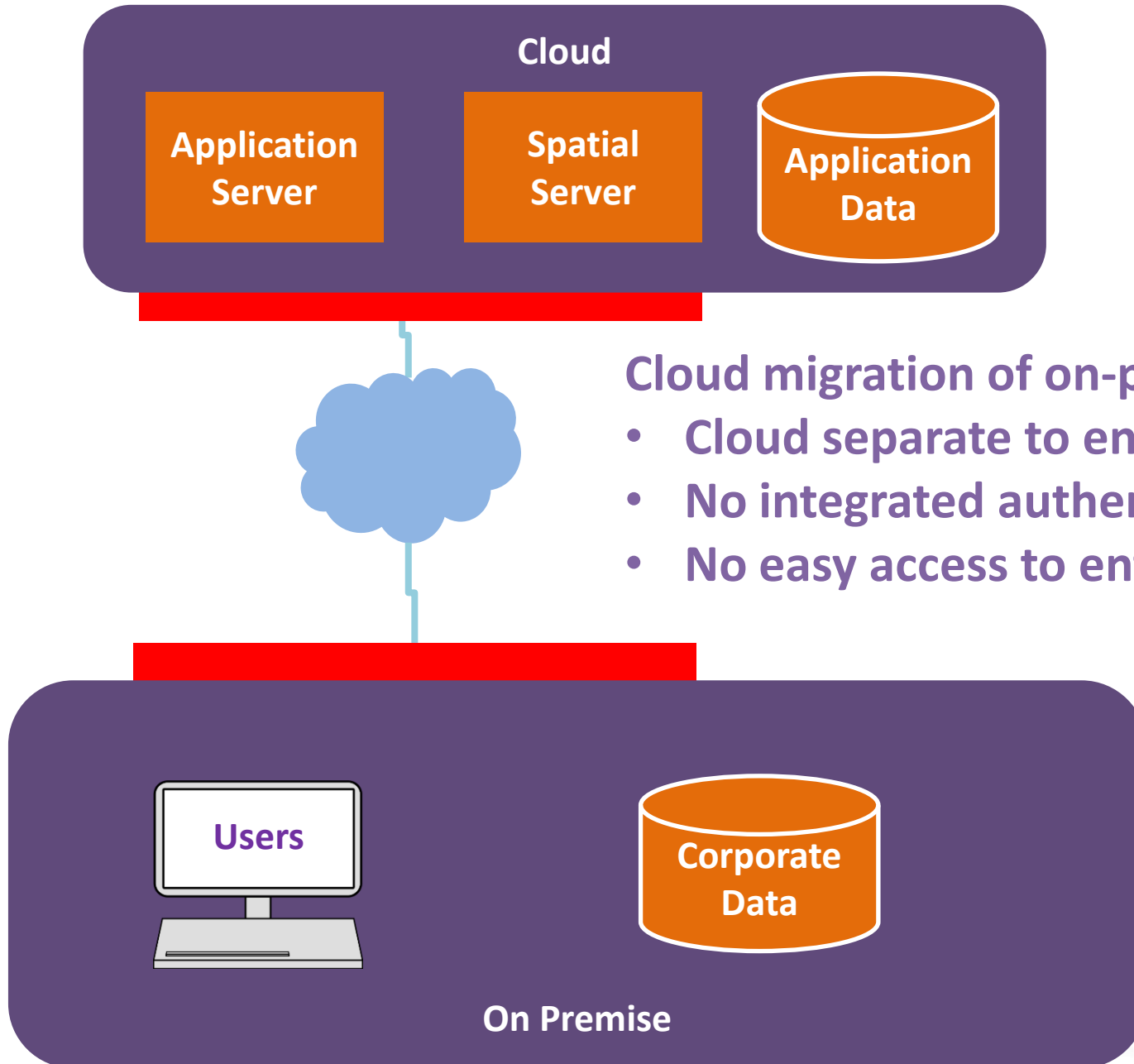**Many struggle to overcome "on premise" issues**

Some examples...

Cloud

Application Server

Application Data

Cloud migration of on-premise system
- VPN to cloud – single enterprise AD
- All users on enterprise network
- Corporate data not migrated
- Spatial server not migrated

Users

Spatial Server

Corporate Data

On Premise

Spatial Vision

Cloud

Application Server | **Spatial Server** | **Application Data**

Cloud migration of on-premise system

- **Cloud separate to enterprise**
- **No integrated authentication**
- **No easy access to enterprise data**

Users | **Corporate Data**

On Premise

Spatial Vision

Cloud

Application Server

Spatial Server

Report Server

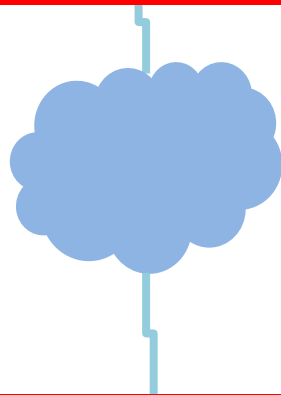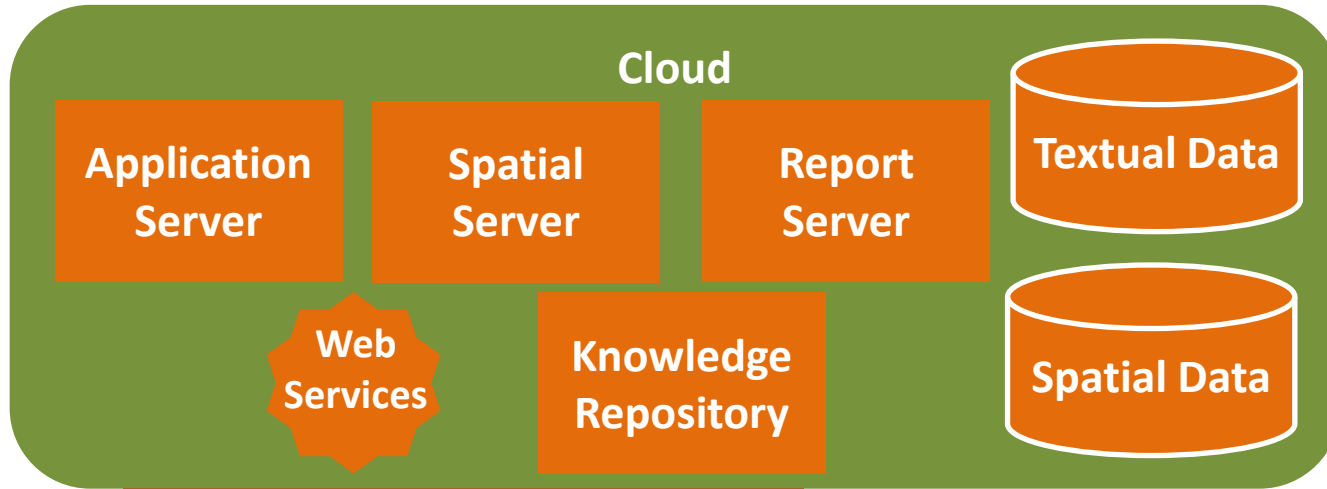Textual Data

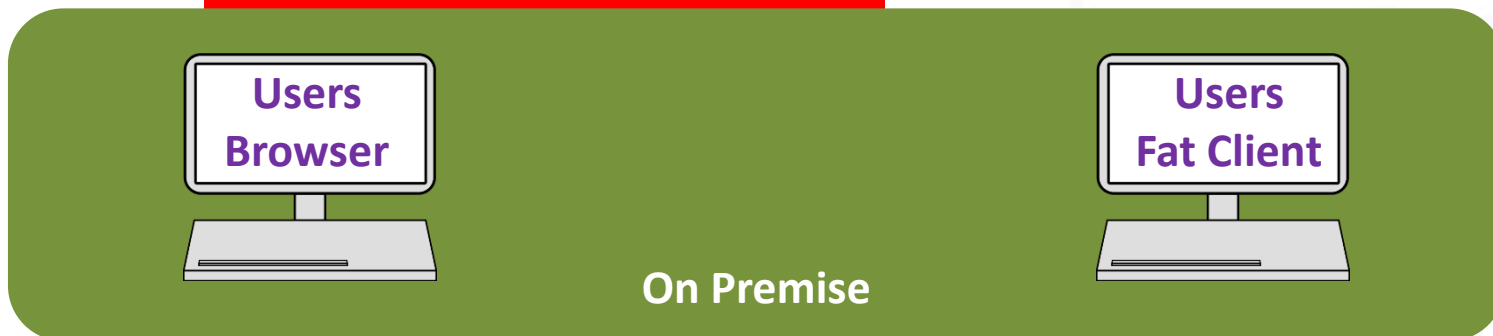Web Services

Knowledge Repository

Spatial Data

Spatial Vision

Cloud migration of on-premise system
- **Original system had little security**
- **S/W components not ideal for cloud security**
- **Resulting hybrid not ideal user exp.**

Users Browser

Users Fat Client

On Premise

- **Existing on-premise solutions rarely suitable for direct cloud migration**

- **Migrating a single business system which depends on corporate services/data raises challenges:**

  - **What goes and what stays?**

  - **How do the separated components talk?**

  - **How is authentication managed?**

  - **Software licensing costs often an impediment**

- **Many enterprise software components not designed for cloud use**
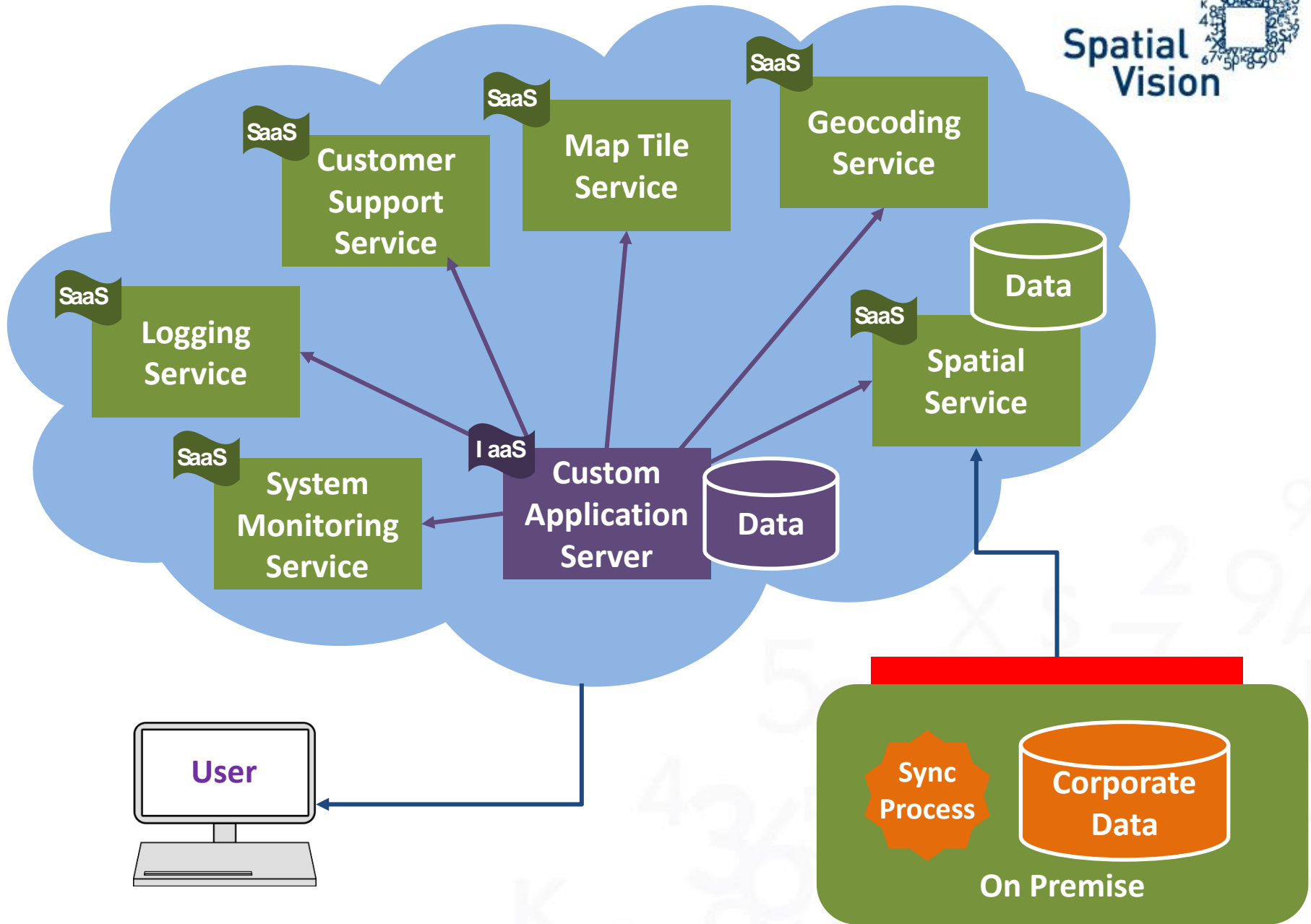
- *Managed* **cloud services not necessarily much cheaper**

It's all in the attitude!

- **Migrating existing enterprise solutions to IaaS achieves only some of the value offered by cloud**

- **The full value of cloud is to found in designing and building solutions from cloud components**

- **For simpler requirements this may be SaaS**

- **For more complex requirements, this may comprise:**

    - **A number of SaaS "plugged" together**

    - **A custom implementation on PaaS or IaaS, probably leveraging one or more SaaS**

Example cloud-built solution

Spatial Vision

SaaS — Customer Support Service

SaaS — Map Tile Service

SaaS — Geocoding Service

SaaS — Logging Service

SaaS — System Monitoring Service

I aaS — Custom Application Server

Data

SaaS — Spatial Service

Data

User

On Premise

Sync Process

Corporate Data

Cloud-built Principles

- **Consume services where available, don't build them**

- **Embrace the open cloud – not a "vendor-fenced" version**

- **Services will be technically heterogeneous**

    - **Need standards (formal or otherwise) to integrate them**

- **Re-think authentication and authorisation – eg Oauth or Facebook (!)**

- **Absolute performance and uptime will often be out of your control**

- **Cloud-built is similar to BYOD – it offers great benefits but you don't get it all your own way (and trying to do so kills it!)**

- **Think of your on-premise components as just another SaaS**

Cloud-built Future

- **Cloud-built different to bespoke or COTS or open-source (although it can use all three)**

- **Based on the "commoditisation" of software functionality**

- **Enterprise solutions built from SaaS "building blocks"**

- **Data components may be widely spread**

- **Data security and privacy challenges (but our social and private lives are there already!)**

- **Many challenges to be solved, but this is the future, not cloud hosting**