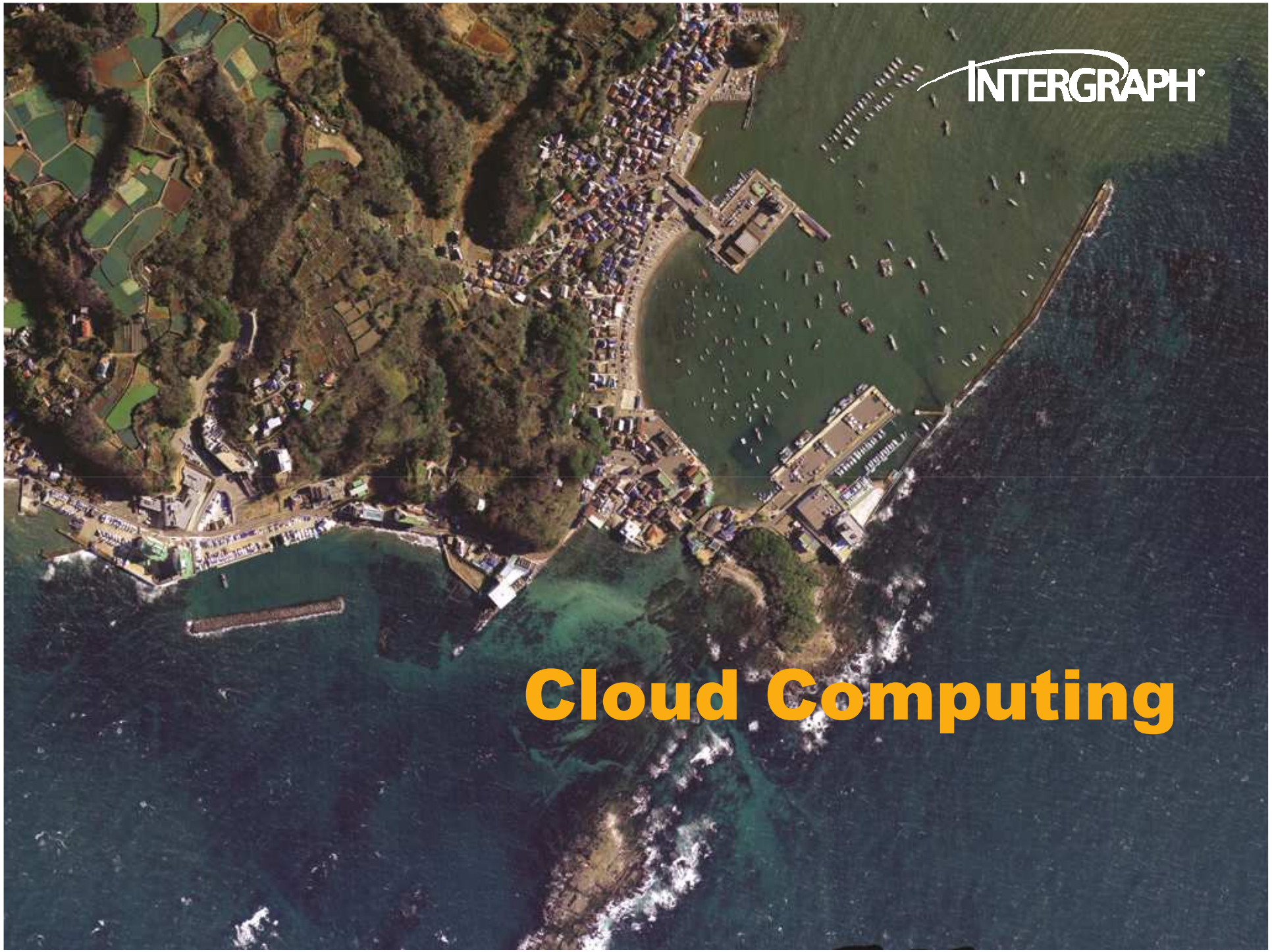
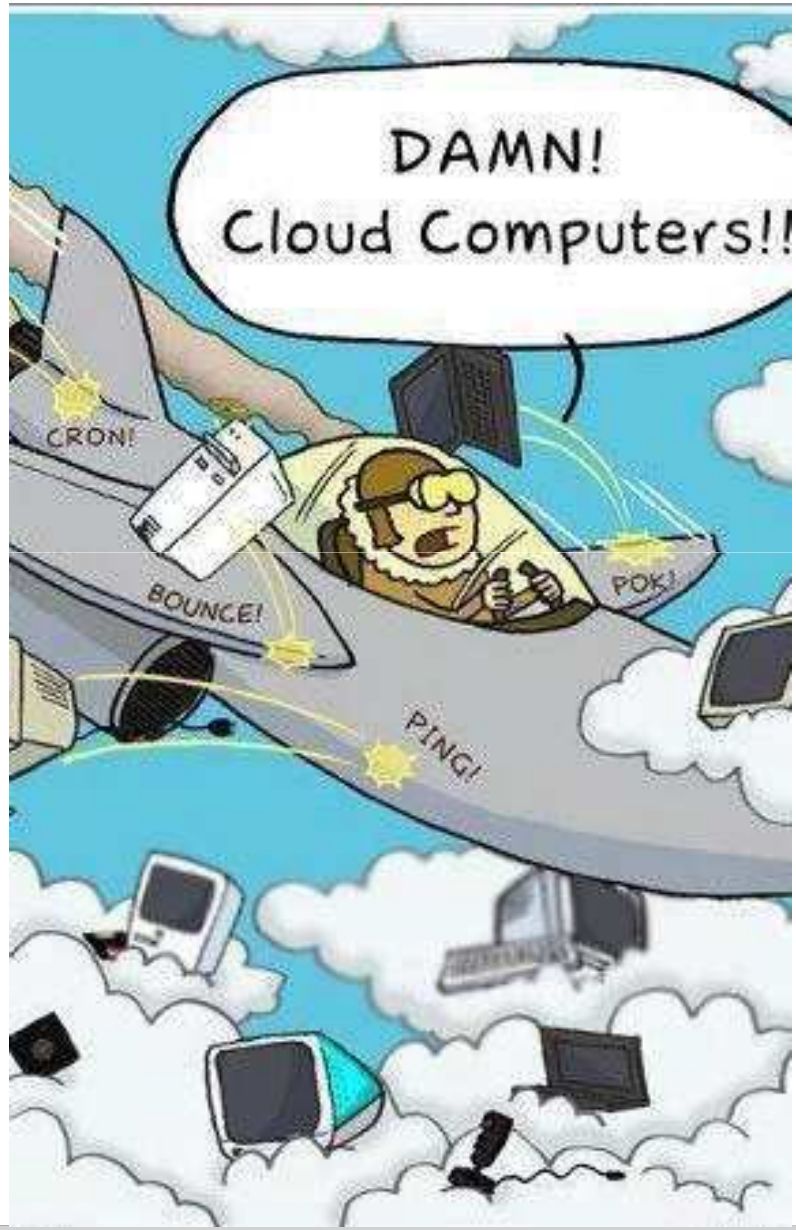

INTERGRAPH
Cloud Computing

Breaking the Myth

Cloud Computing Definition

Cloud Computing is a next-generation software (application and services) hosting technology that can be owned and operated by an organization (the private or internal cloud) or by independent provider (public cloud).



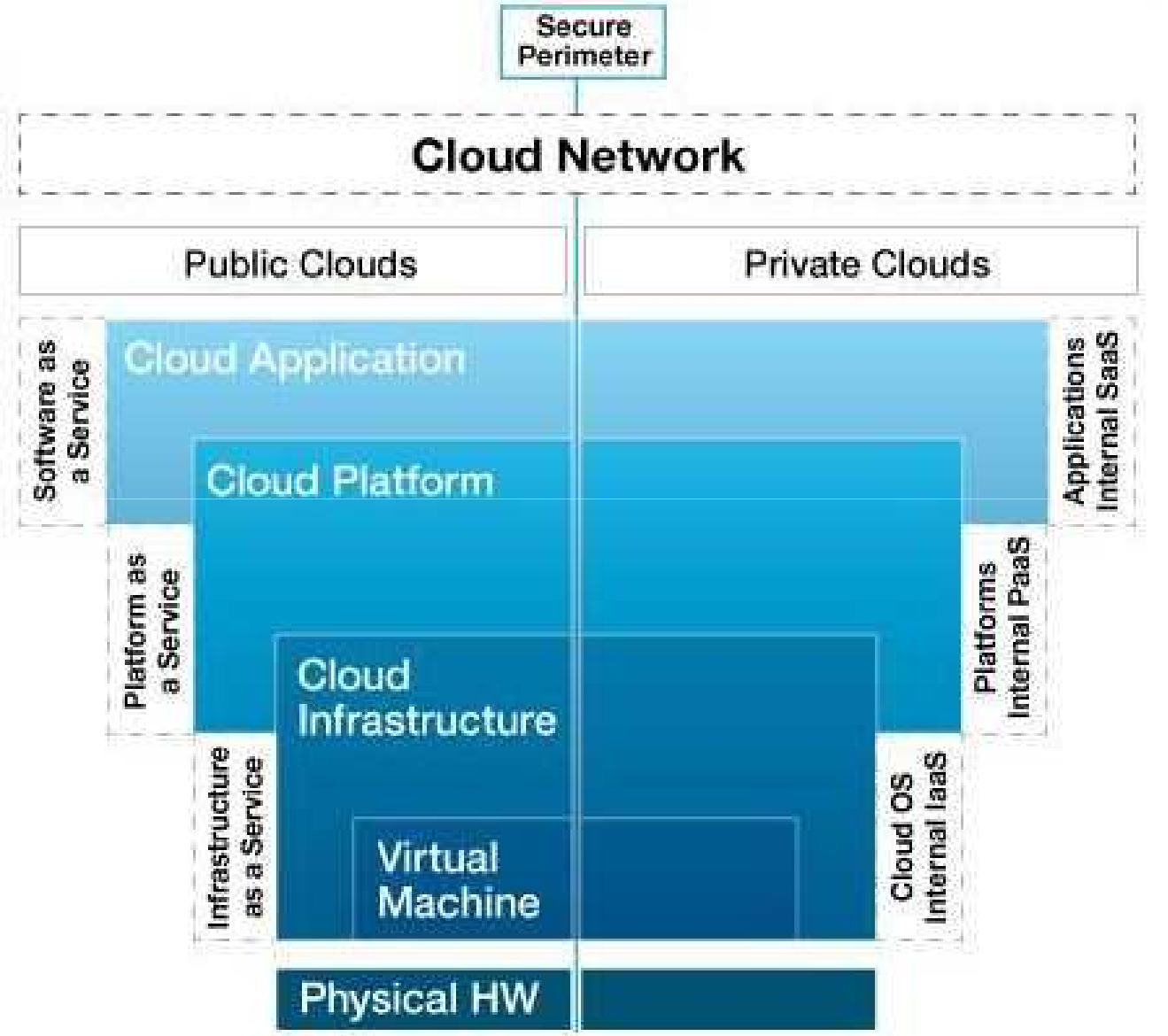
Evolution of Cloud Computing

- Clustering
  - Increased computational power packed in square meter enhanced performance, efficiency, and automation.
  - Which provides compute cycles with critical mass and cost per compute cycle.
- Connectivity
  - enables effective deployment of computational power
  - Fast, reliable, cheap interconnectivity is the cornerstone of various communications types – whether on chip, a single computer unit, within or outside the data center.
- Abstraction
  - service oriented architecture (SOA) and virtualization

Evolution of Cloud Computing

- Convention
  - decrease unnecessary variability and improve efficiency in manufacturing and integration.
- Culture
  - comfort with processing and data existing in the cloud

Cloud Computing Architecture



Cloud Computing Solutions

Two genres of Cloud based solutions -

- Desktop/Web Applications hosted over cloud and,
- Mobile/SmartPhone Apps.

Apps Addiction

If there is a need – there is at least 1 app to fulfil it

App Stores are like malls: Everything under one roof

More and more citizens have smartphones – and will soon have tablets as well

Time consumed on apps is *higher* than on the regular Internet

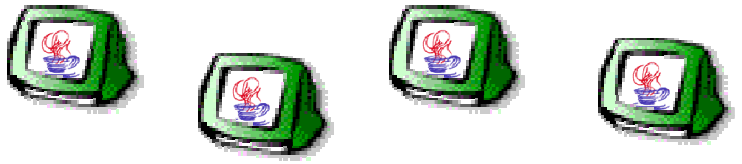
Intergraph Solutions on Cloud

Following three solutions are available

- GeoMedia Smart Client
- Mobile MapWorks
- Mobile Alert

GeoMedia Smart Client

3. Web-Clients

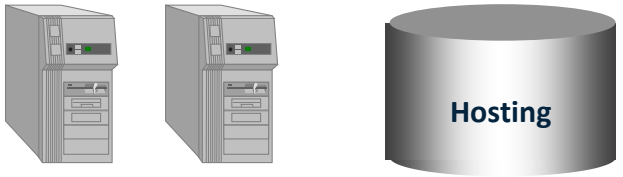


2. Providing infrastructure

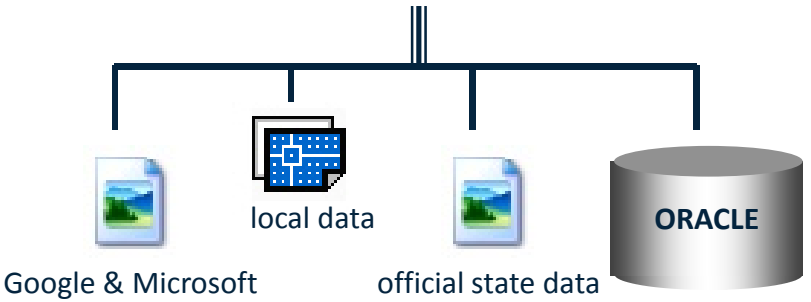
2.a Internet connectivity
security, monitoring, etc.

2.b Application Server SW
reliability, availability, etc.

2.c Server Housing / Hosting
backup, reliability, etc.



1. Geospatial data



Smart Client SaaS : model options

Currently we have implemented “three versions”:

1. DIRECT
2. VIA PARTNER
3. SALE & HOST

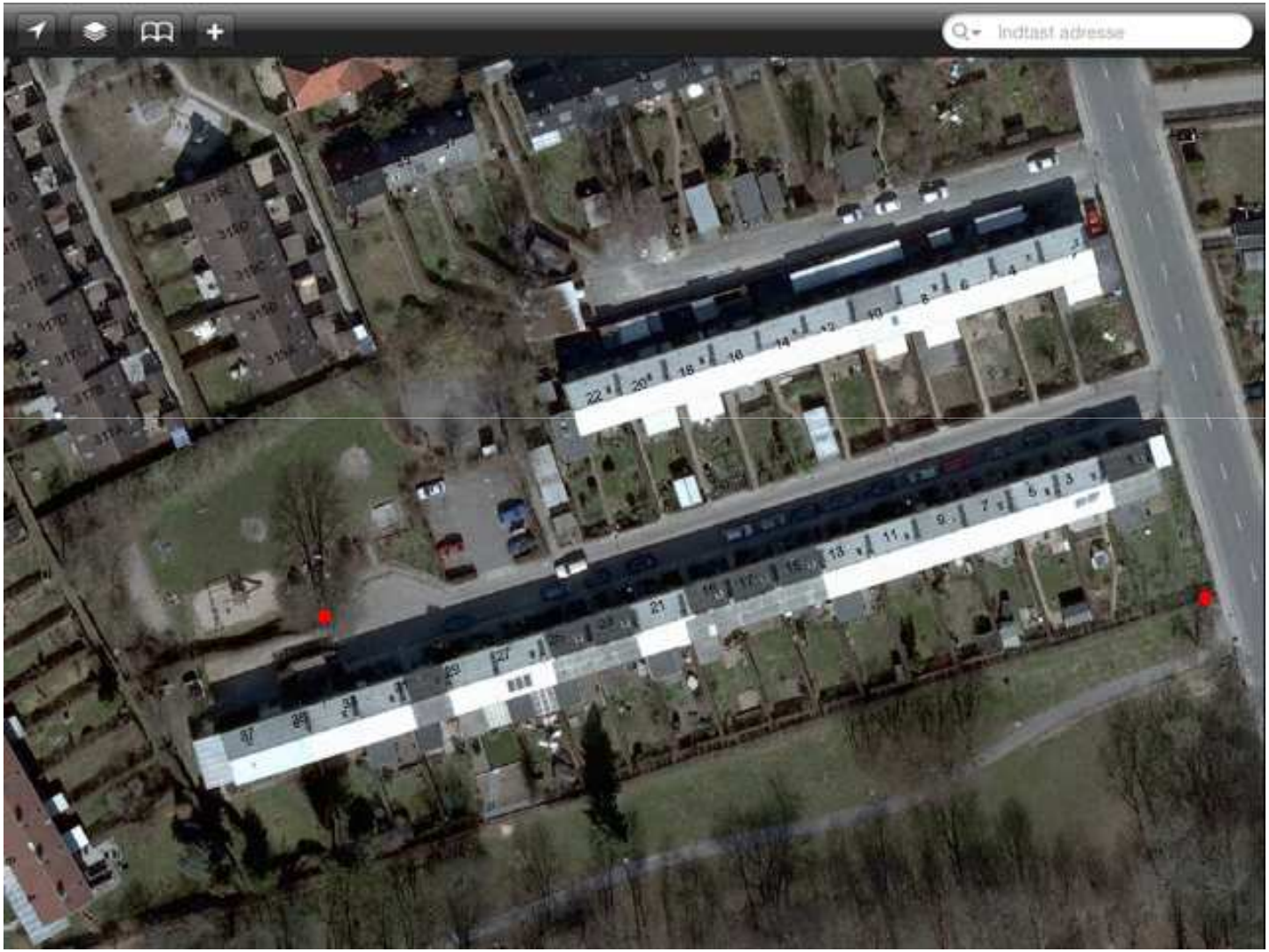
in all cases the user is running our GeoMedia SmartClient solution
we are adding workflows and additional services to grow

SaaS : Benefits

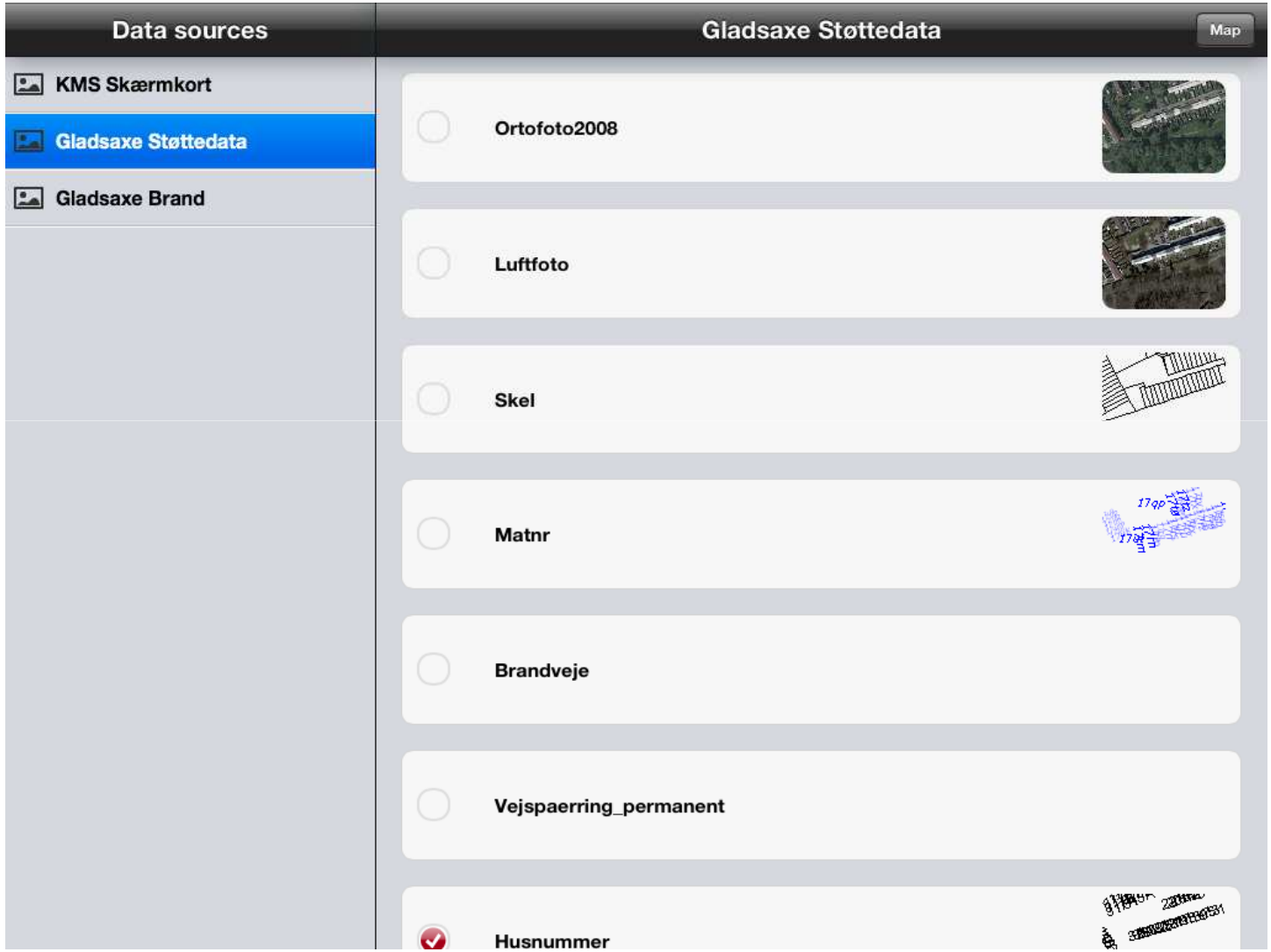
- “ready to use” enterprise SW solution for providing data management, project and user control
- housing and hosting know how (HW, 99,7% availability, backup, geospatial data management, monitoring, load balancing, security)
- project experience since 8 years – more than 170 server are running SmartClient

Mobile MapWorks

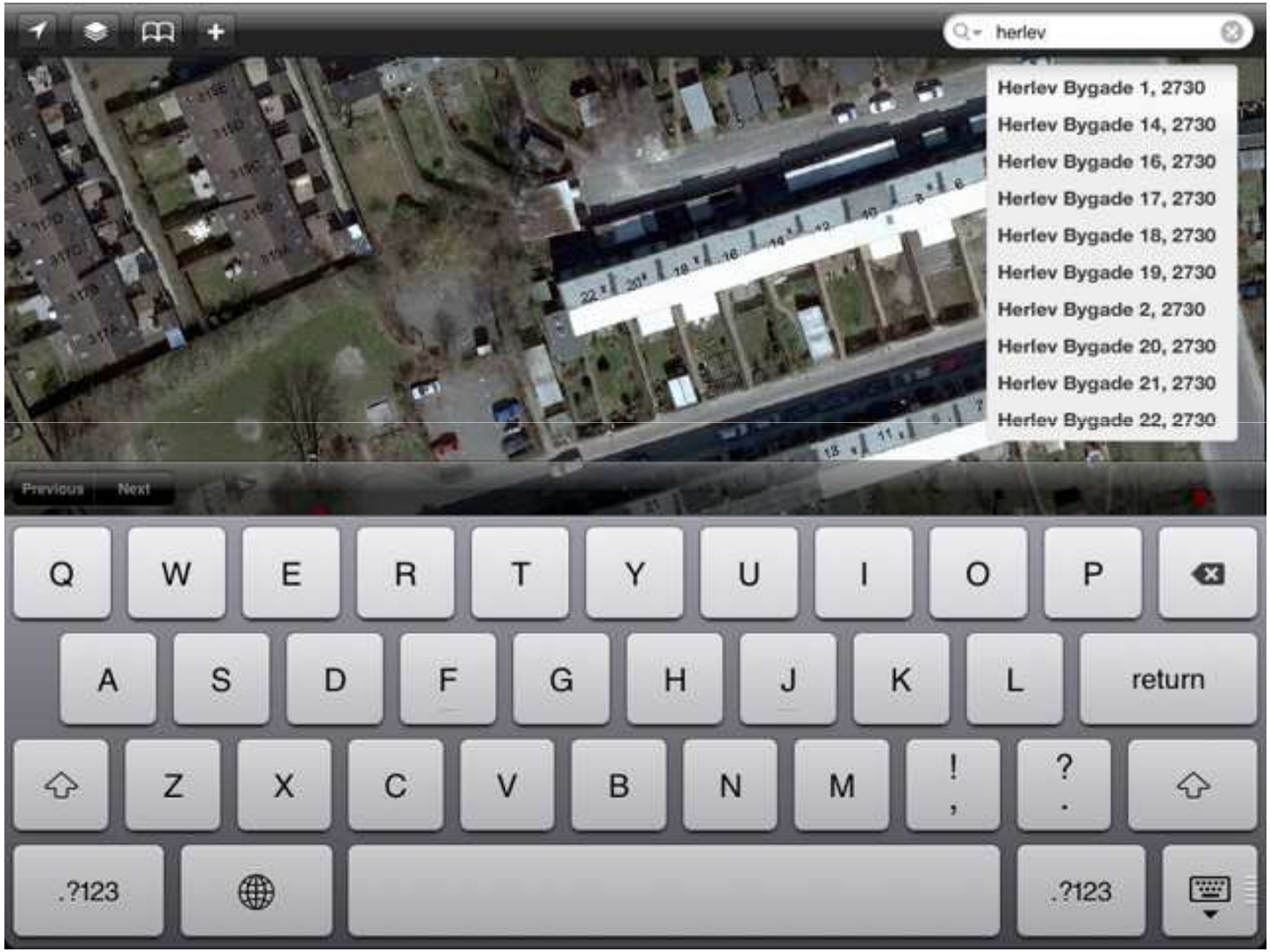
Fast map display – cached or live



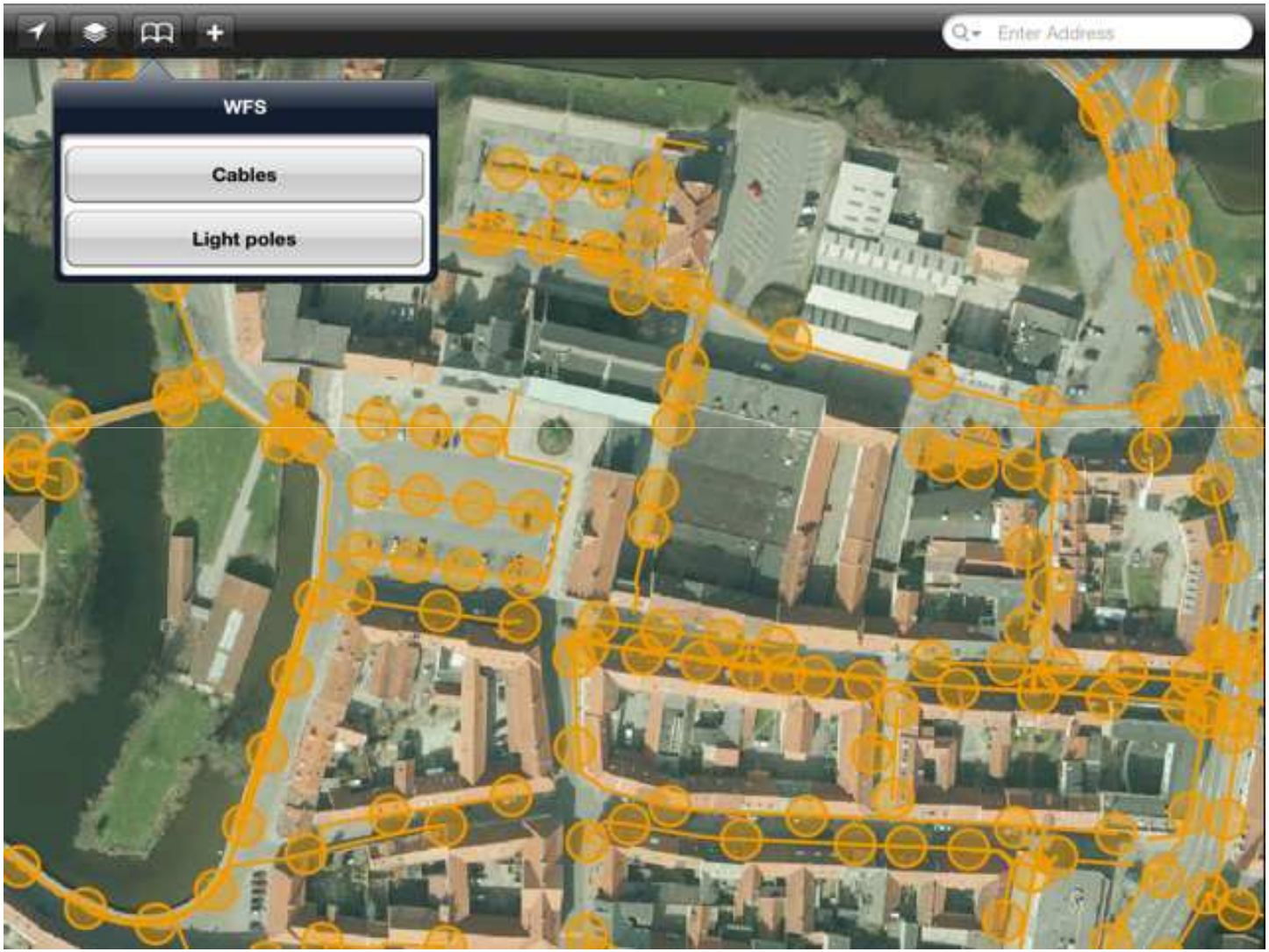
Legend control – supports WMS and WFS



Searches – Addresses and POI



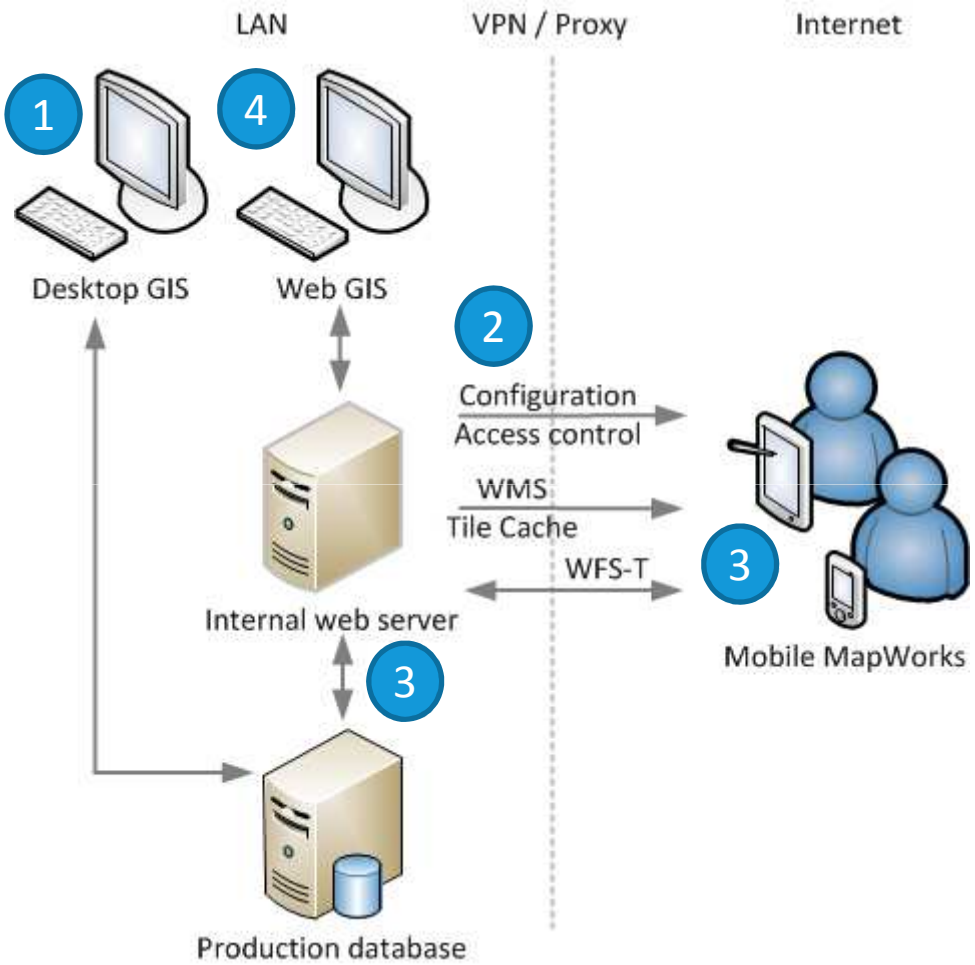
Digitize new features



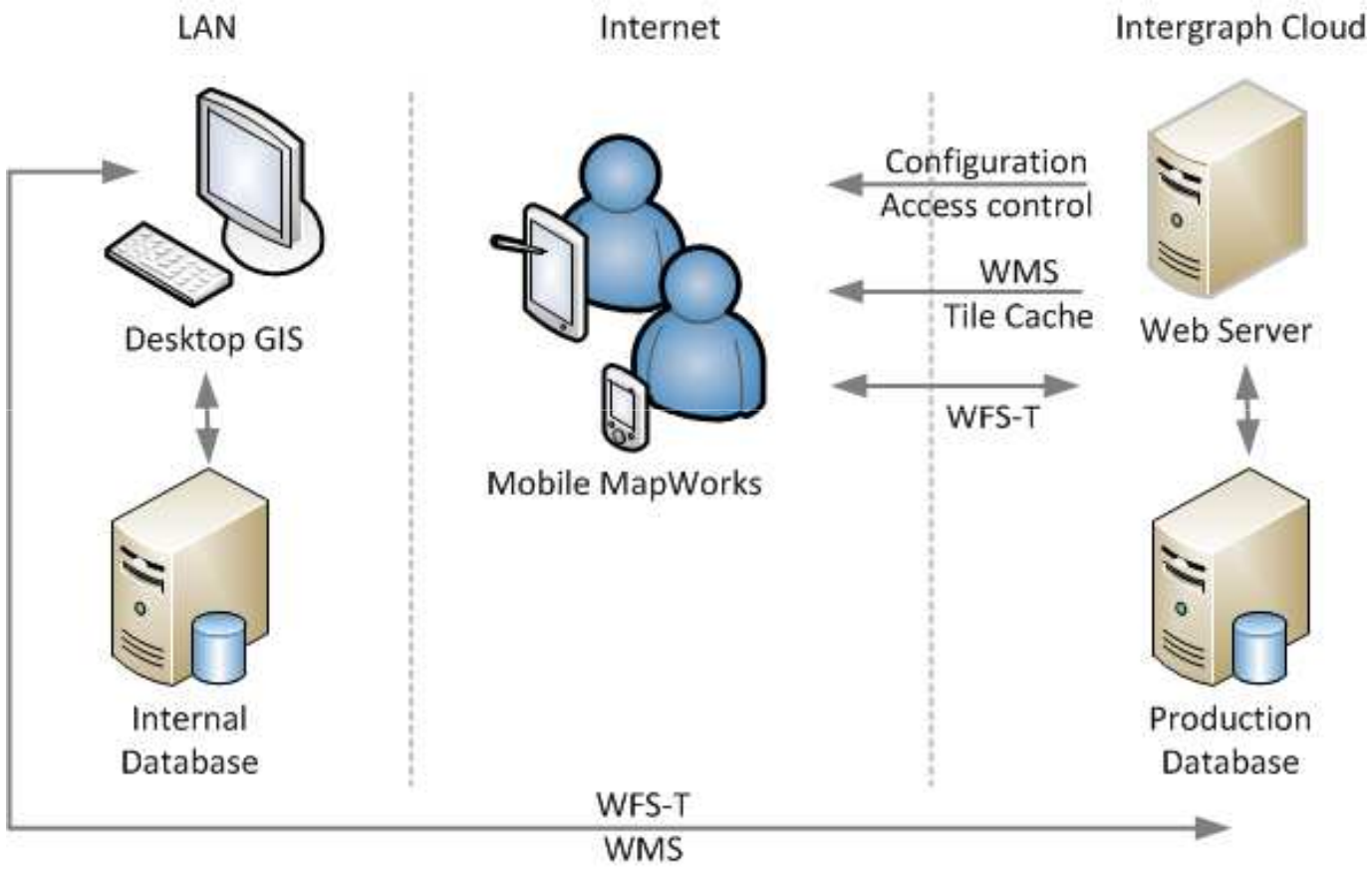
The Technology behind

- Based on a Service-oriented architecture and all communication is based on web services
- All geospatial data are communicated using OGC web services; WMS + WFS-T
- Developed using the *PhoneGap* mobile development framework (HTML5, CSS, JavaScript, JSON and OpenLayers)
- Can be implemented at any customer OGC-compliant infrastructure/backend
- Optionally subscribe to Intergraph's infrastructure (SaaS)

Architecture – Internal database



Architecture – hosted by Intergraph



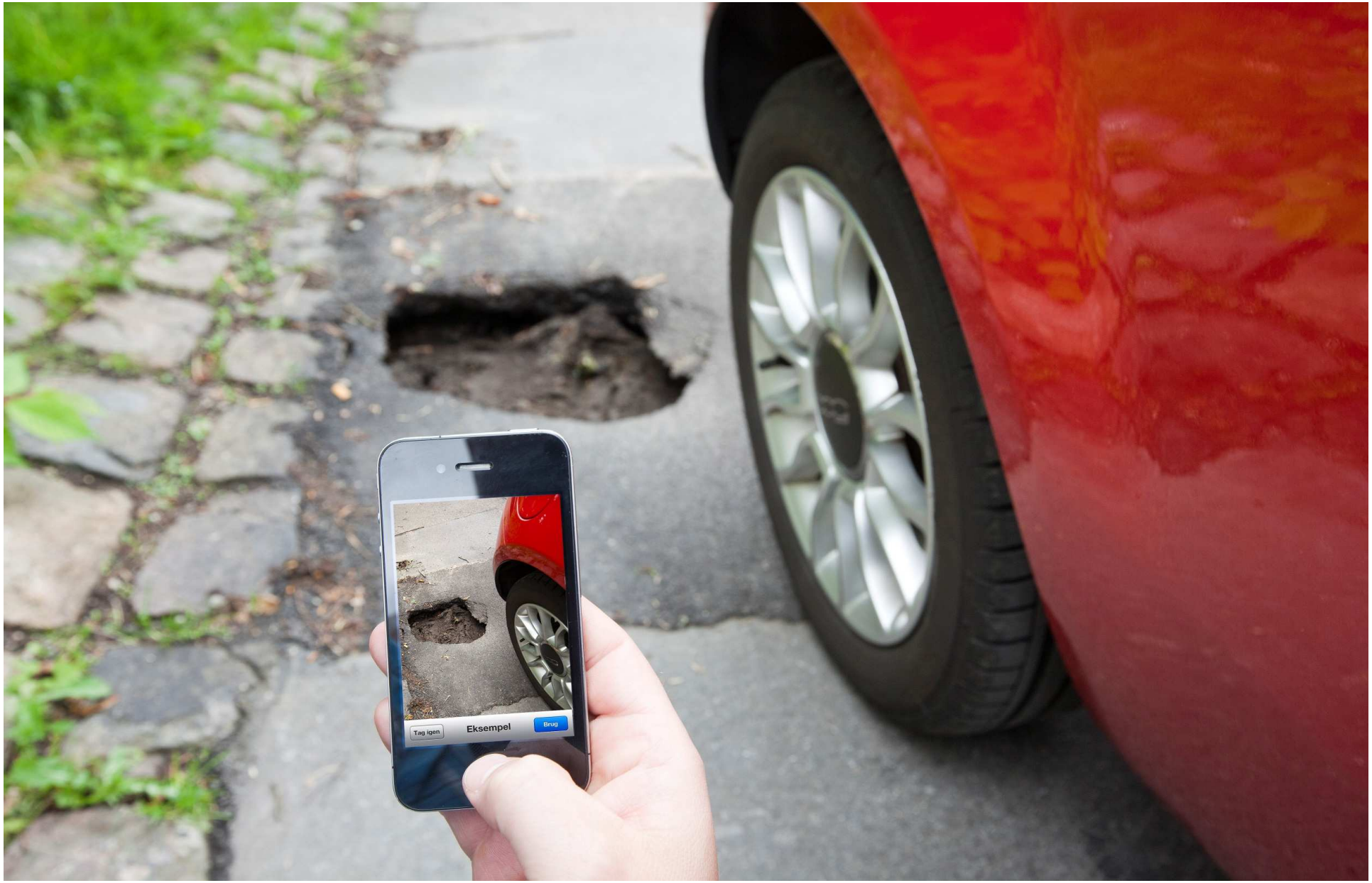
Suits a number of different workflows

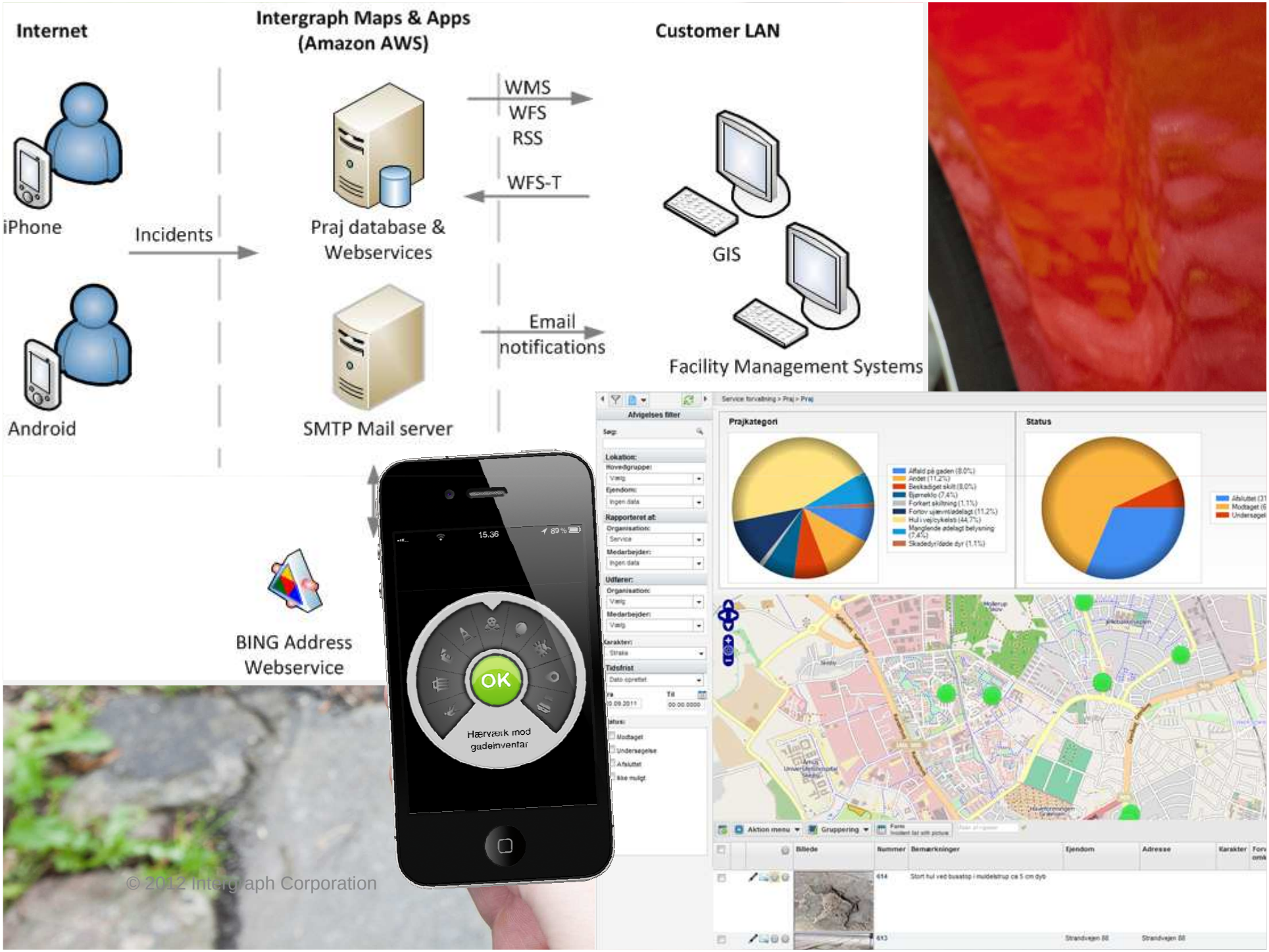
- The solution can easily be configured to match a number of different purposes

- The following purposes have already been implemented by customers;
  - Bus stops and other road equipment
  - City interior (benches, lamps, garbage bins etc.)
  - Security inspections
  - Key boxes and gate openings
  - Fire Hydrants
  - IT-network intersections
  - Damage location information

“If the feature class be published using OGC webserivces it can be edited using Mobile MapWorks”

Mobile Alert




Internet
Intergraph Maps & Apps
(Amazon AWS)
Customer LAN
iPhone
Incidents
Praj database &
Webservices
WMS
WFS
RSS
WFS-T
GIS
Android
SMTP Mail server
Email
notifications
Facility Management Systems
BING Address
Webservice
OK
Hærværk mod
gadeinventar
Prajkategori
Status
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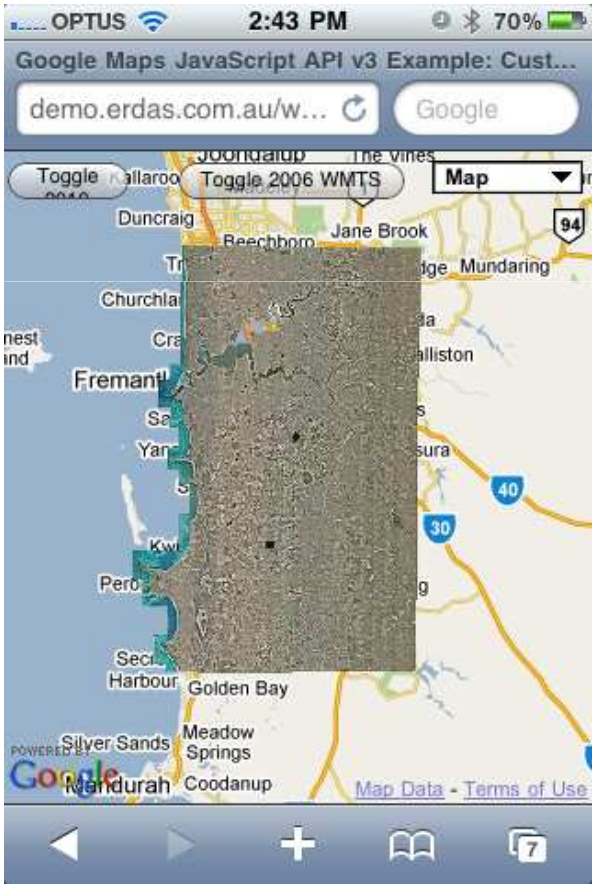
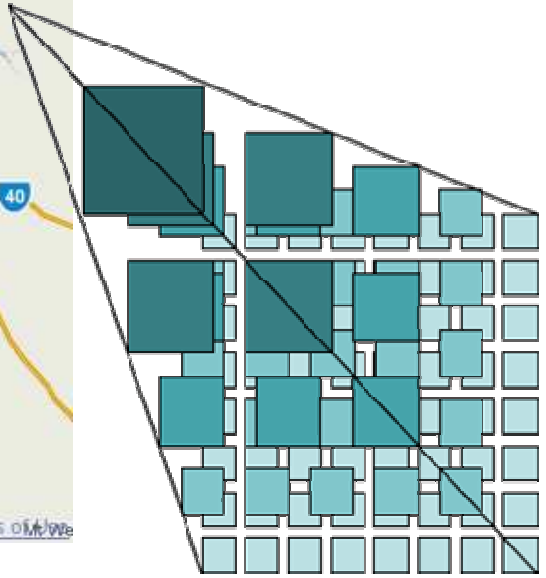
WMTS for faster map delivery

WMTS Makes large image datasets useable – acceptable display speeds

Image automation – simplifies publishing, especially for data with churn

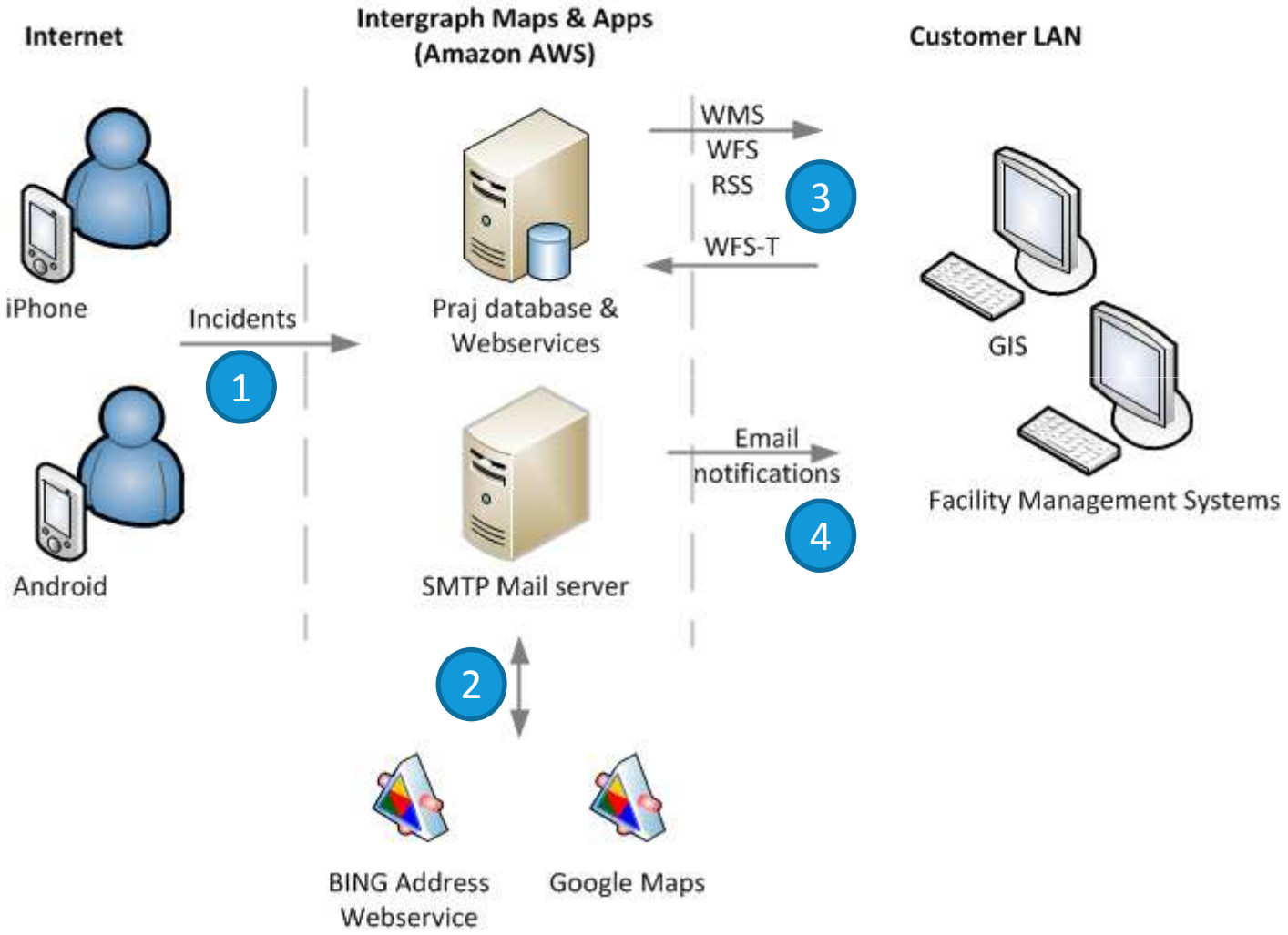




Mobile Alert

- A simple and free app for citizens for iPhone and Android smartphones
- Citizens can register problems such as pot holes, grafitti, missing street lights etc.
- The information is send to Intergraph's system and distributed to the responsible authorities
- Local governments and utility companies can subscribe and recieve the information by email or through OGC web services

Architecture and data flow



Questions?

SMARTERDECISIONS