LADM in the Cloud

Brent Jones, PE, PLS

Land Administration

GIS is the platform for land administration

Land administration is the process of determining, recording, and disseminating of information about ownership, value and use of land when implementing land management policies.

Source: UN/ECE Land Administration Guidelines 1996

Ownership

Value

Use

GIS

Planning

Management

Development

Spatial Data Management   Land Administration

GIS is key to good Land Administration.....

Trends in Land Administration
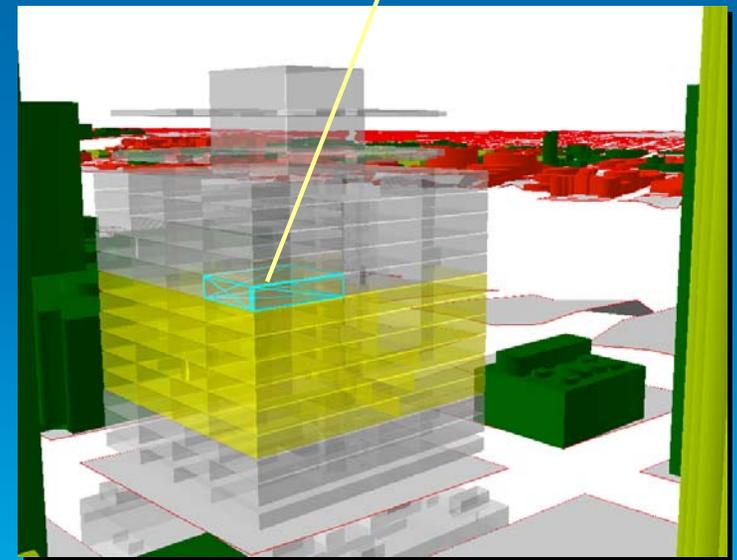
Technology Enables Capabilities

- Implementing Cadastre is the basis of SDI

- Information infrastructure maturing

- Faster data updating

- Fully connected data workers

- Community driven cadastral mapping

- Sharing data

- Faster implementations

Powering Cadastre 2.0

Trends - Cadastre 2.0

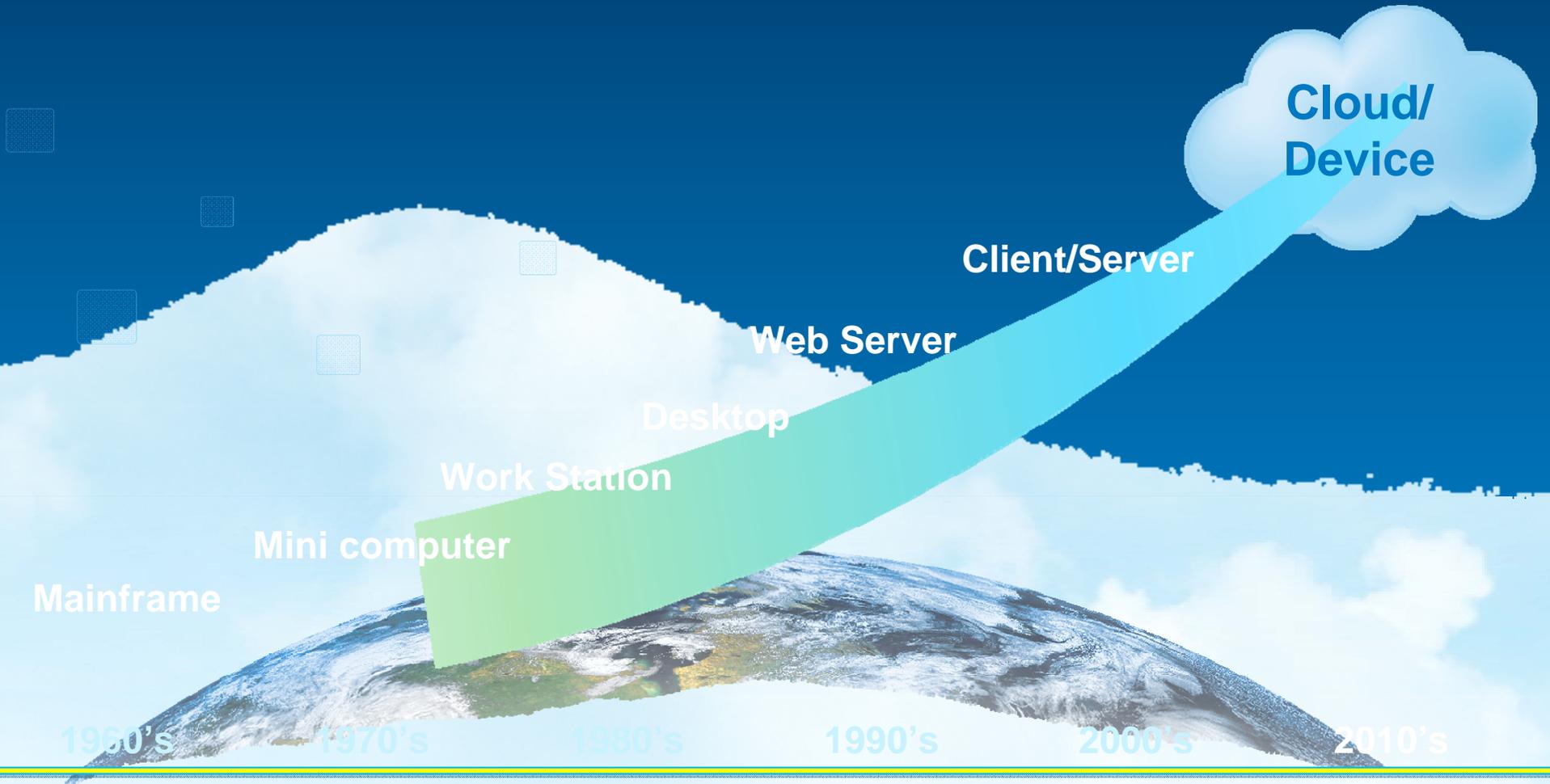**Applying Technology to Meet Current Challenges**

- Multipurpose

- Transparent/Accountable

- 3D/4D Parcel management applications

- COTS – Commercial Off-the-Shelf

- Engaged citizens

- Fully connected data workers

- Cloud Computing

- Online Data

- Ongoing Data Quality Improvement

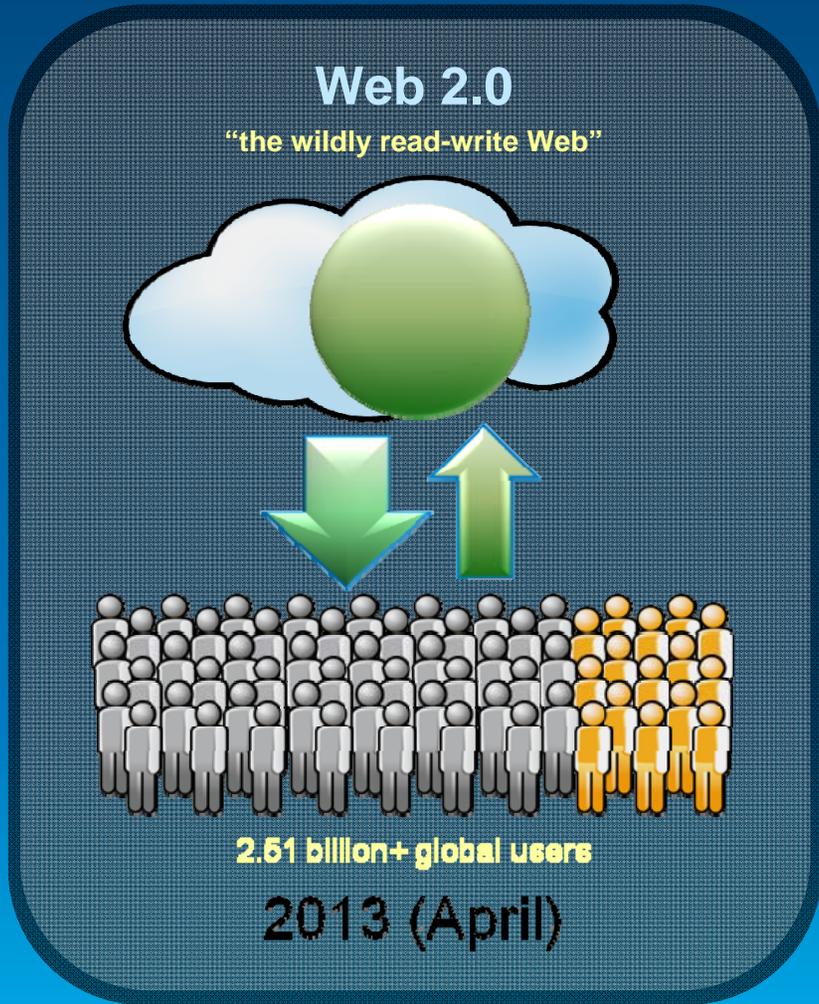*GIS is the Platform for Cadastre 2.0*

Platforms Evolve
A New Architecture

Cloud/Device

Client/Server

Web Server

Desktop

Work Station

Mini computer

Mainframe

1960's   1970's   1980's   1990's   2000's   2010's

New platforms, new opportunities…..

2.0
Leveraging the new Platform….

Web 1.0
"the mostly read-only Web"

45 million global users

1996

Web 2.0
"the wildly read-write Web"

2.51 billion+ global users

2013 (April)

6 billion cell phones worldwide (20% smartphones)…..

Web Services

Quick, but very important definition
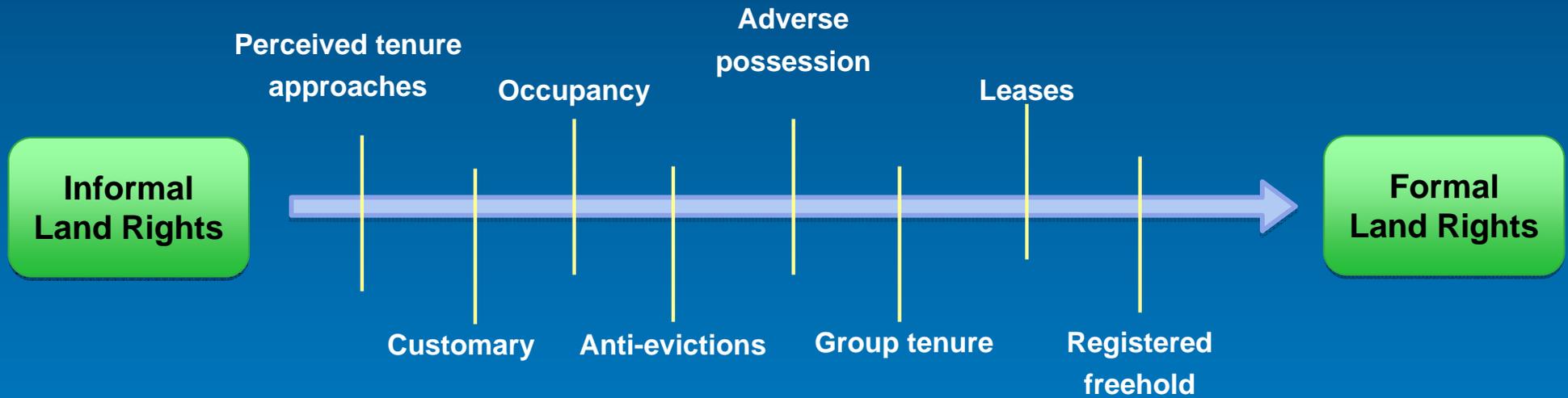
WFS – Web Feature Service

WMS – Web Mapping Service
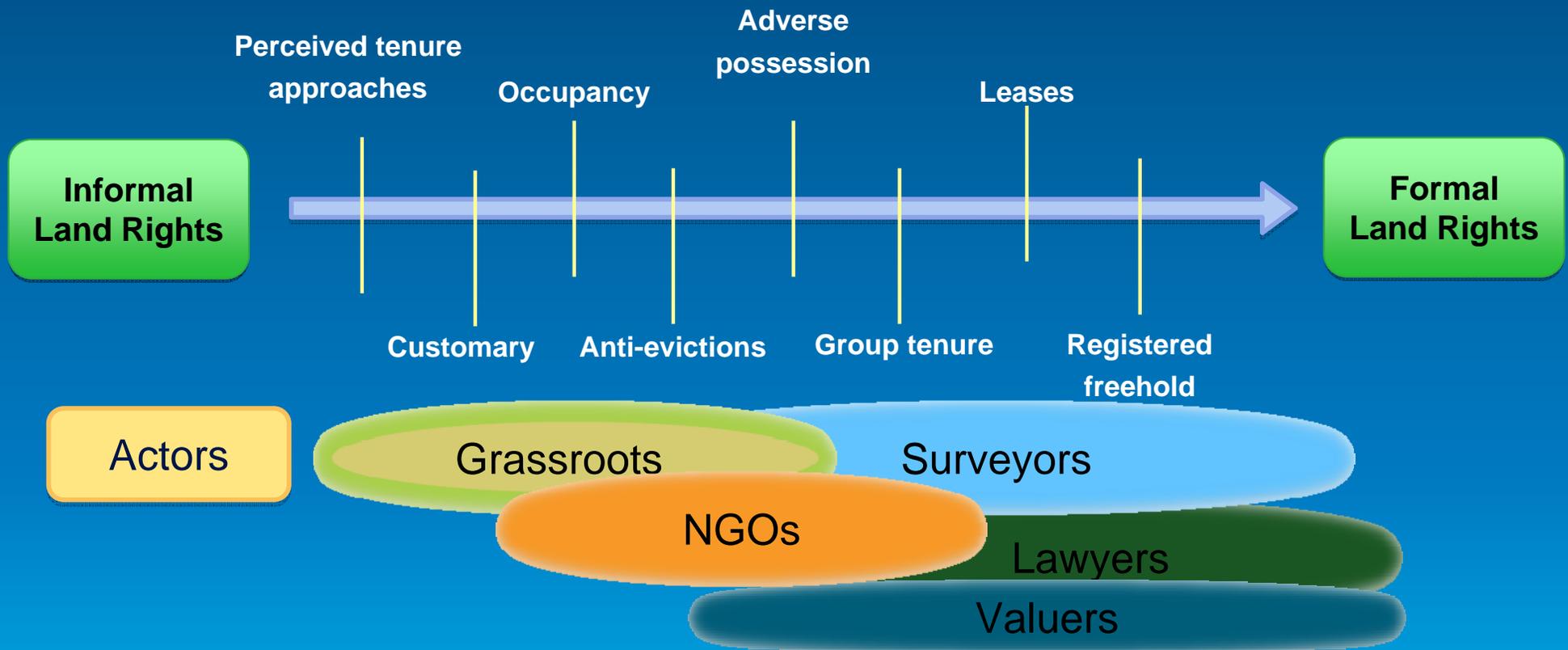
Geoprocessing Services

- are application components
- communicate using open protocols
- are self-contained and self-describing
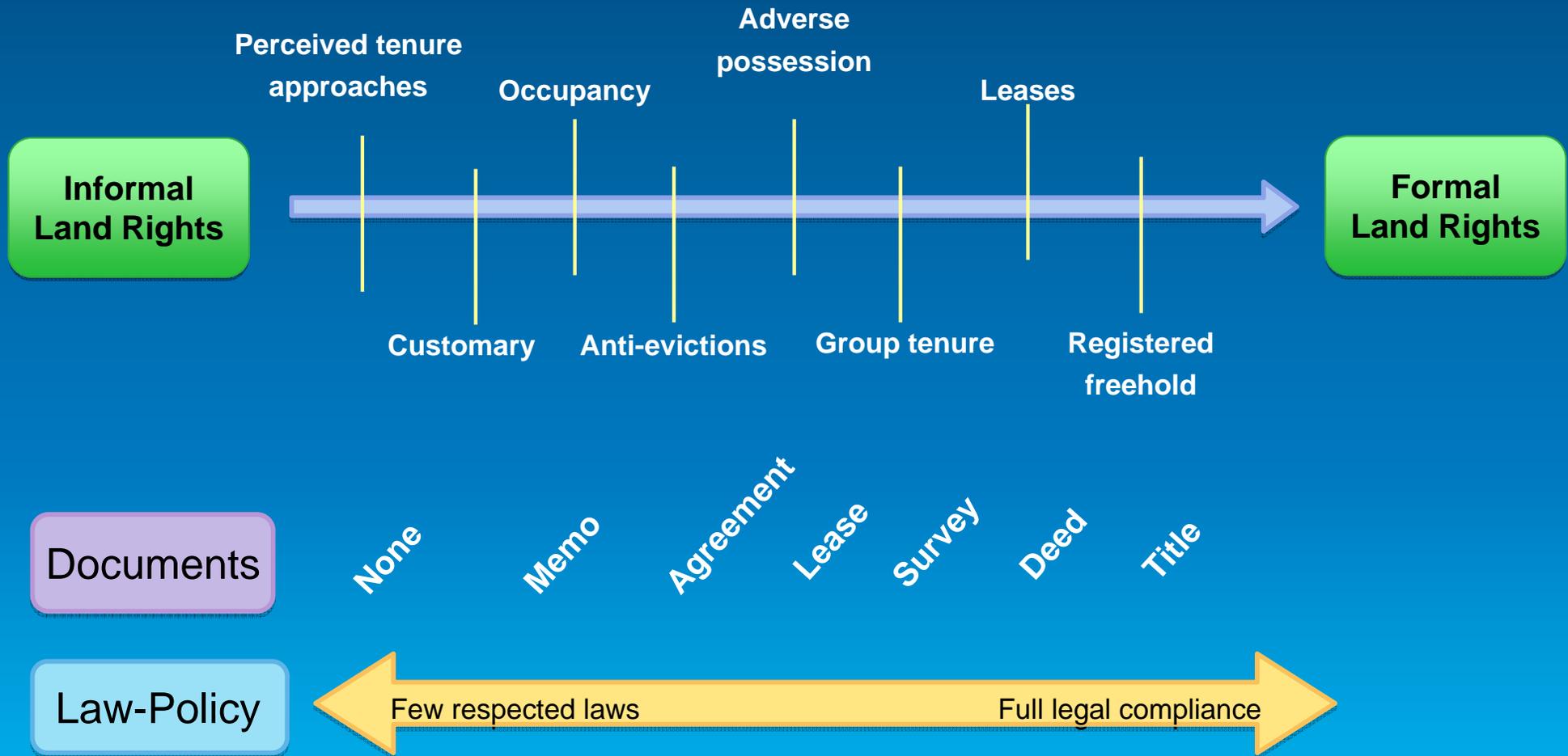- can be used by other applications

Sharing, Communicating, Publishing……

Continuum of Rights

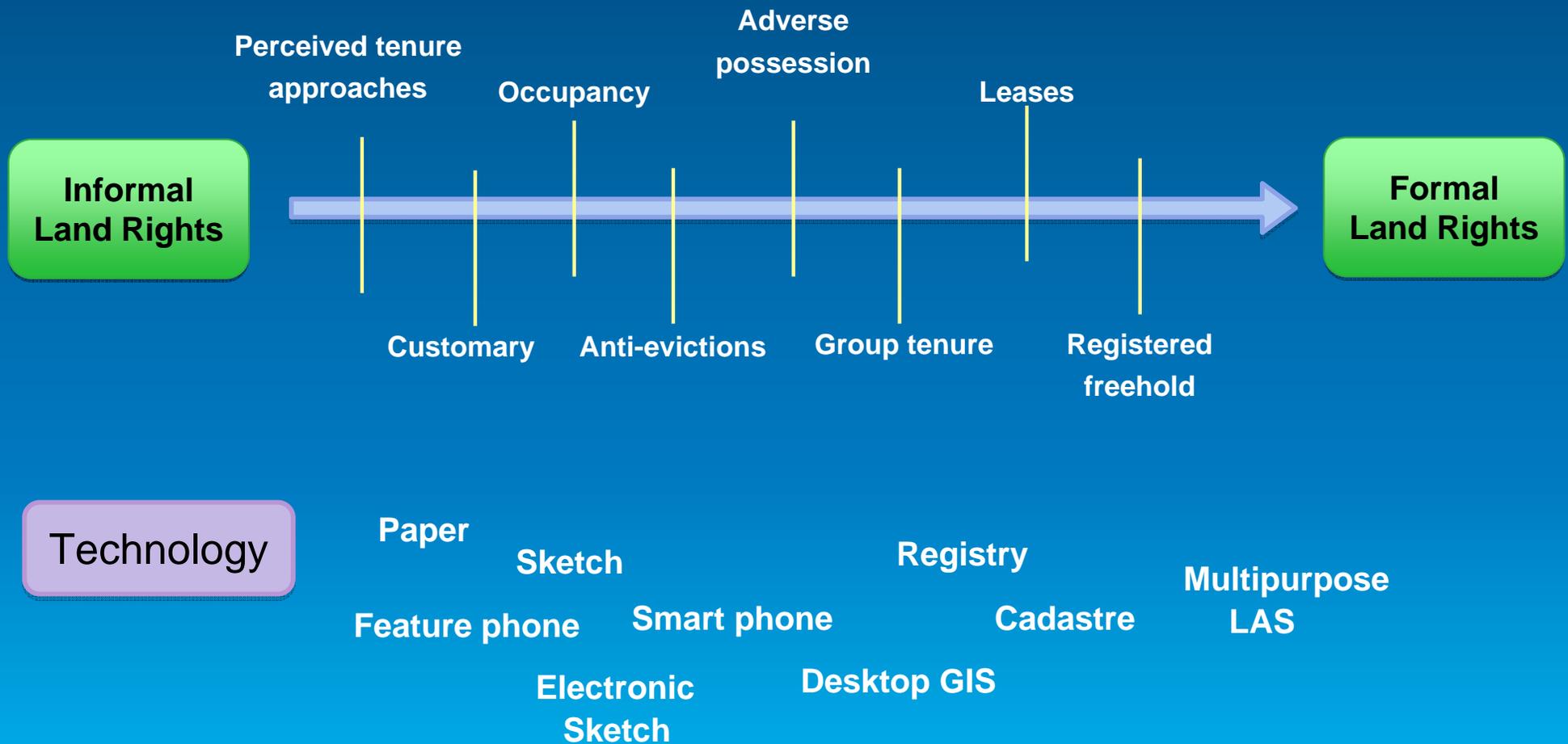# Continuum of Rights

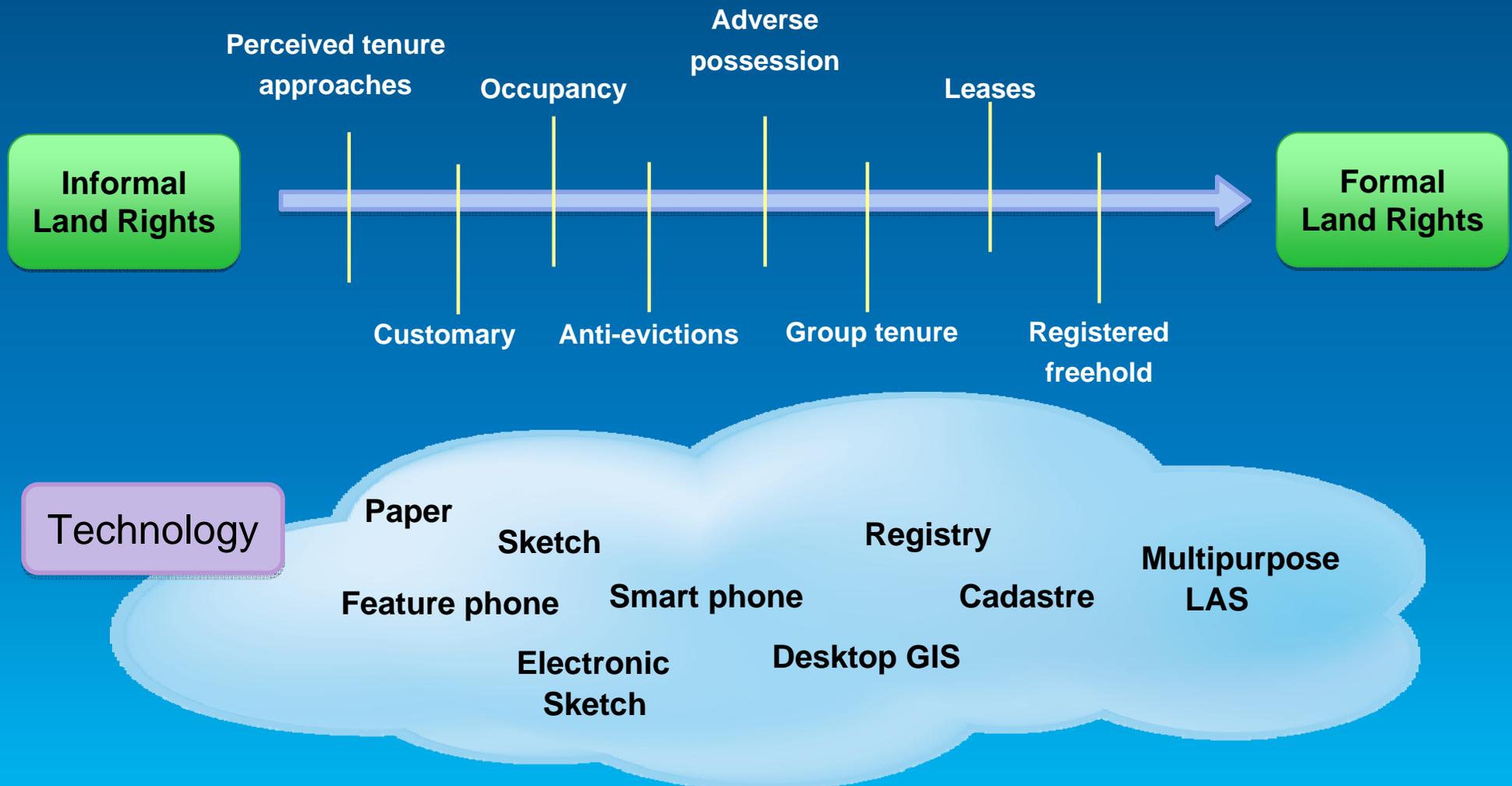Perceived tenure approaches

Occupancy

Adverse possession

Leases

Informal Land Rights → **Formal Land Rights**

Customary

Anti-evictions

Group tenure

Registered freehold

Actors

Grassroots

Surveyors

NGOs

Lawyers

Valuers

Continuum of Rights

Perceived tenure approaches

Adverse possession

Occupancy

Leases

Informal Land Rights

Formal Land Rights

Customary

Anti-evictions

Group tenure

Registered freehold

Documents

None   Memo   Agreement   Lease   Survey   Deed   Title

Law-Policy

Few respected laws   Full legal compliance

Continuum of Rights

GIS Cloud is the Technology Enabler of the Continuum of Rights

Perceived tenure approaches

Occupancy

Adverse possession

Leases

Informal Land Rights

Formal Land Rights

Customary

Anti-evictions

Group tenure

Registered freehold

Technology

Paper

Sketch

Registry

Multipurpose LAS

Feature phone

Smart phone

Cadastre

Electronic Sketch

Desktop GIS

GIS as a Platform

Connects and Leverages

Pervasive Apps

Enterprise

Desktop

Server

Cloud
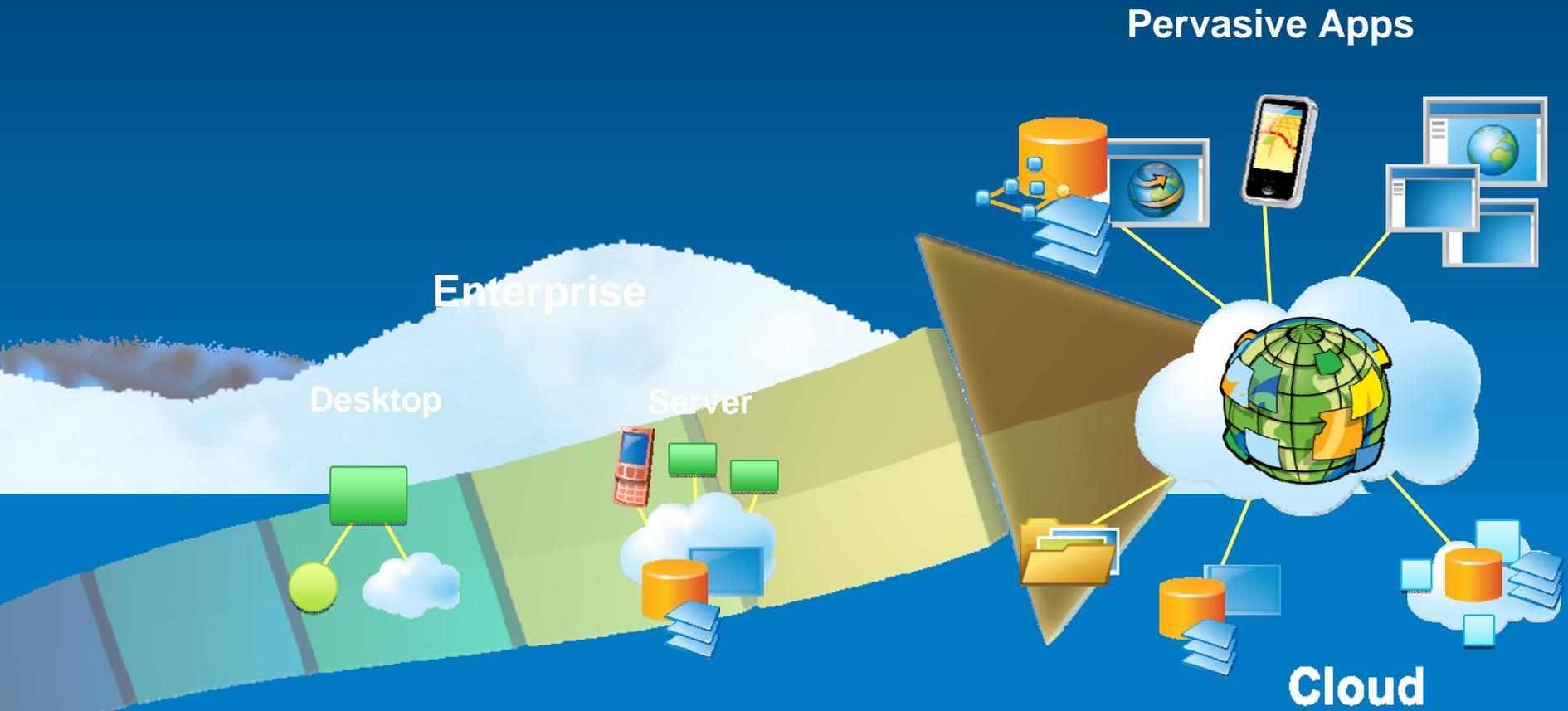
Providing Webmaps and Tools. . . .

This Platform Integrates All Types of Information

Maps

Spreadsheets

Social Media

Big Data

Services
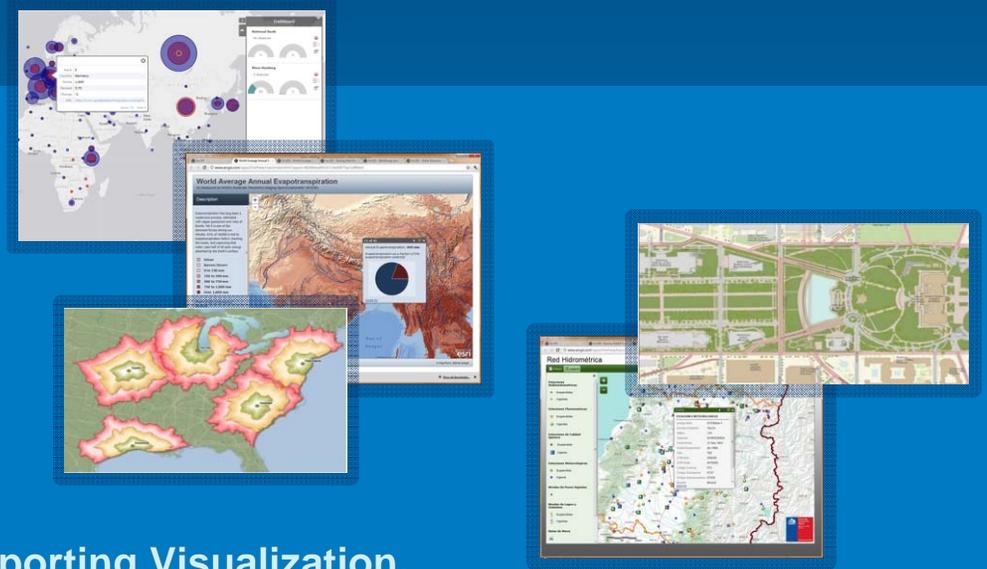
DBMS

Imagery

Sensor Networks

Web Maps Normalize The Information . . .
. . . And Make It Accessible Widely

Web Maps are the New Medium

Providing Intelligent Maps to Everyone

Any Device

Smartphones

Social Media

Tablets

Websites

Desktops

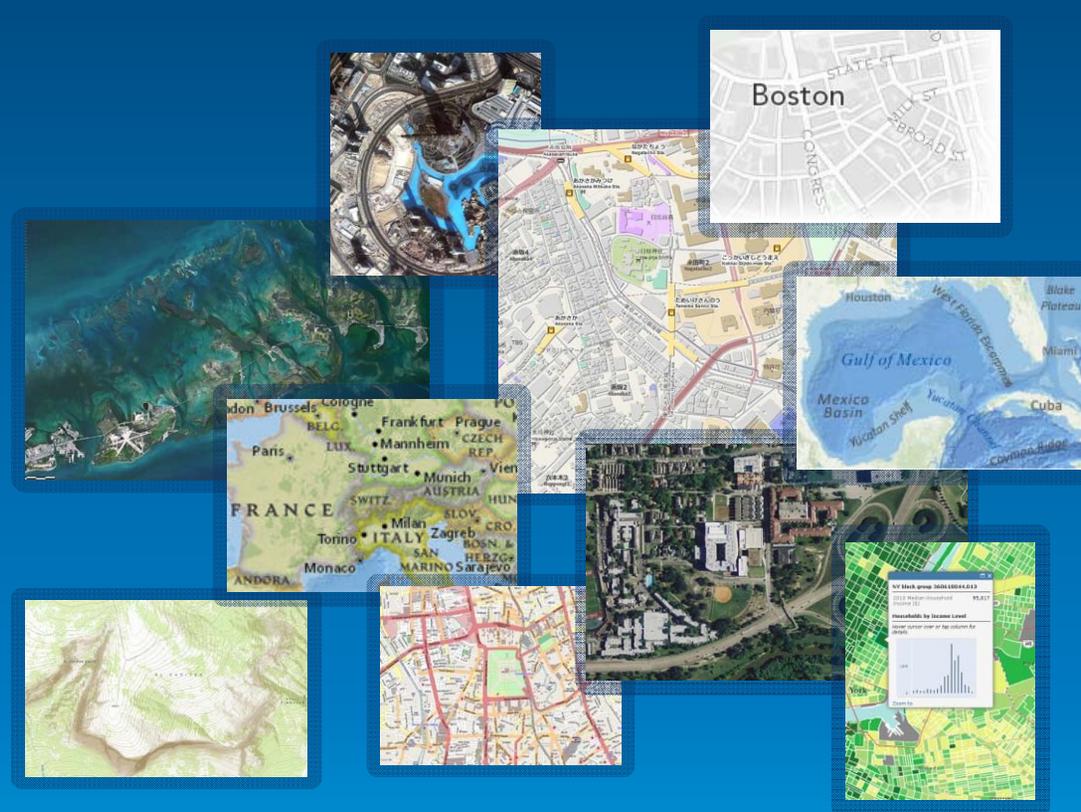**Browsers**

Web Map

Web Services

Dynamic

Supporting Visualization, Query, Editing, and Analysis

Making Dynamic Geographic Information Available Anywhere

Global Basemaps and Data are Part of the Platform
Normalized Commercial and Government Sources

Geocoding
Streets
Oceans
Places
Terrain
Routing
Imagery
Demographics
Topographic

. . . Providing a Foundation for Cadastral Systems Worldwide

Data/Maps On/From Any Device

Apps - Changing the way we think about computing

Rich Functionality

Viewing

Editing

Field Data Collection

One Map

Windows

iOS
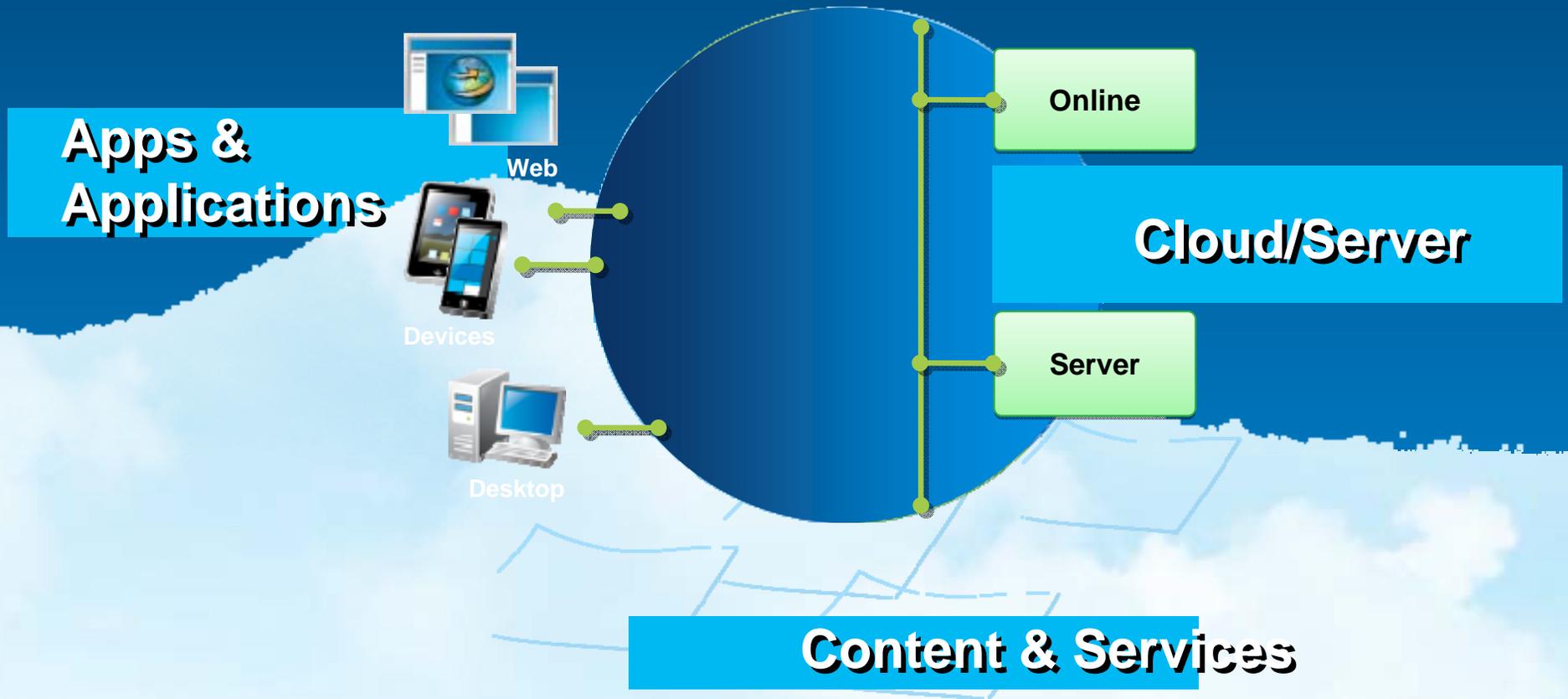
Android

GIS

. . . Making Land Information Accessible Everywhere

GIS as a Platform
A Complete Cadastre Platform

Apps & Applications

Web

Devices

Desktop

Online

Cloud/Server

Server
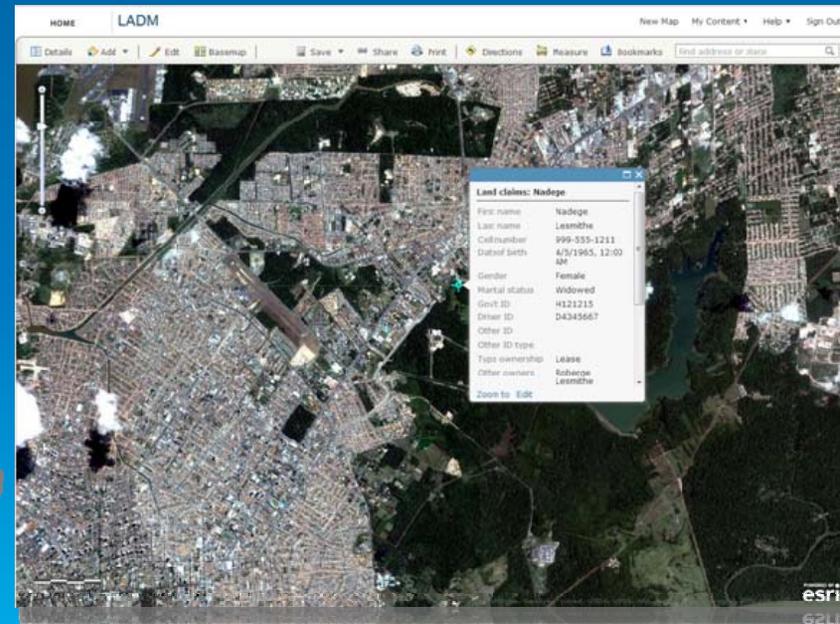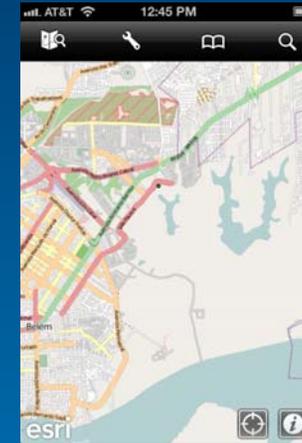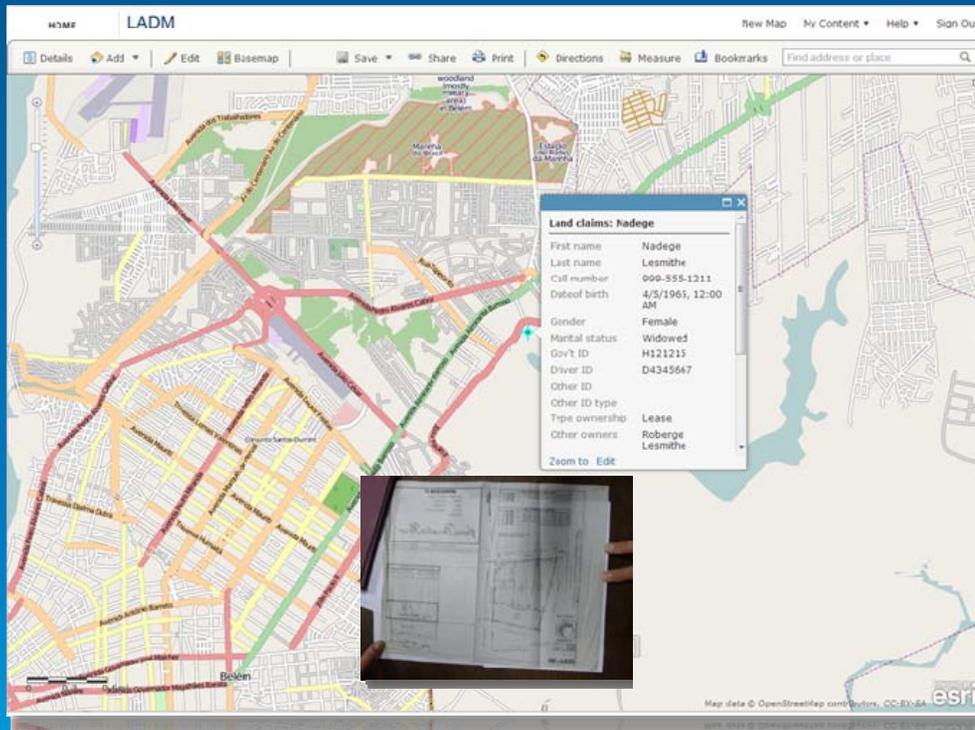
Content & Services

Easy, Open and Cloud Enabled . . .

. . . Providing Transformational Opportunities

LADM in the Cloud
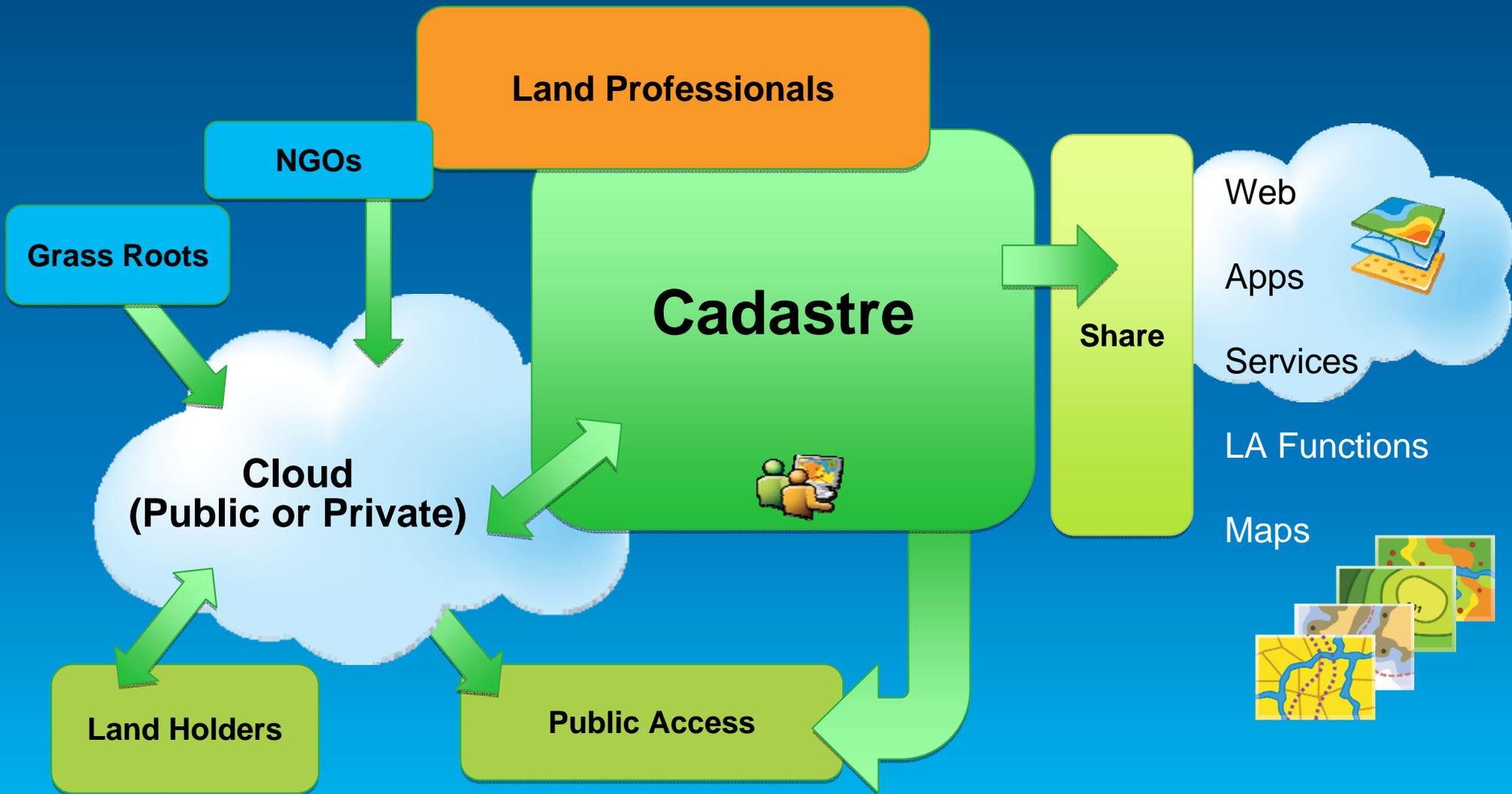## On your phone, on your desktop, on the web….

LADM WFS– feature service
Editable worldwide
Publically available

Worldwide, device independent…….

LADM in the Cloud
Add information on tenure….

Any device
Works disconnected

Open Maps and LADM attributes……

Authoritative _and_ Contributed Content

Using all data available, appropriately…..

Land Professionals

NGOs

Grass Roots

Cloud
(Public or Private)

Cadastre

Share

Land Holders

Public Access

Web

Apps

Services

LA Functions

Maps

LADM in the Cloud

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