Marine SDI Conference
and MSDIWG 4 Meeting

Copenhagen, Denmark Jan 30 – Feb 1st , 2013

Cloud Computing: Marine SDI for All

Rafael Ponce

Global Maritime Business Development

Presenter

- Rafael Ponce
- Esri Global Maritime Business Development
- RTCM Member
- Retired Mexican Navy Captain
- Former Deputy Director of Hydrography and CO of Hydrographic Ship *ARM Rio Tuxpan*
- Cat. A Hydrographer
- Master of Sciences from the University of Southern Mississippi

The end of an era…

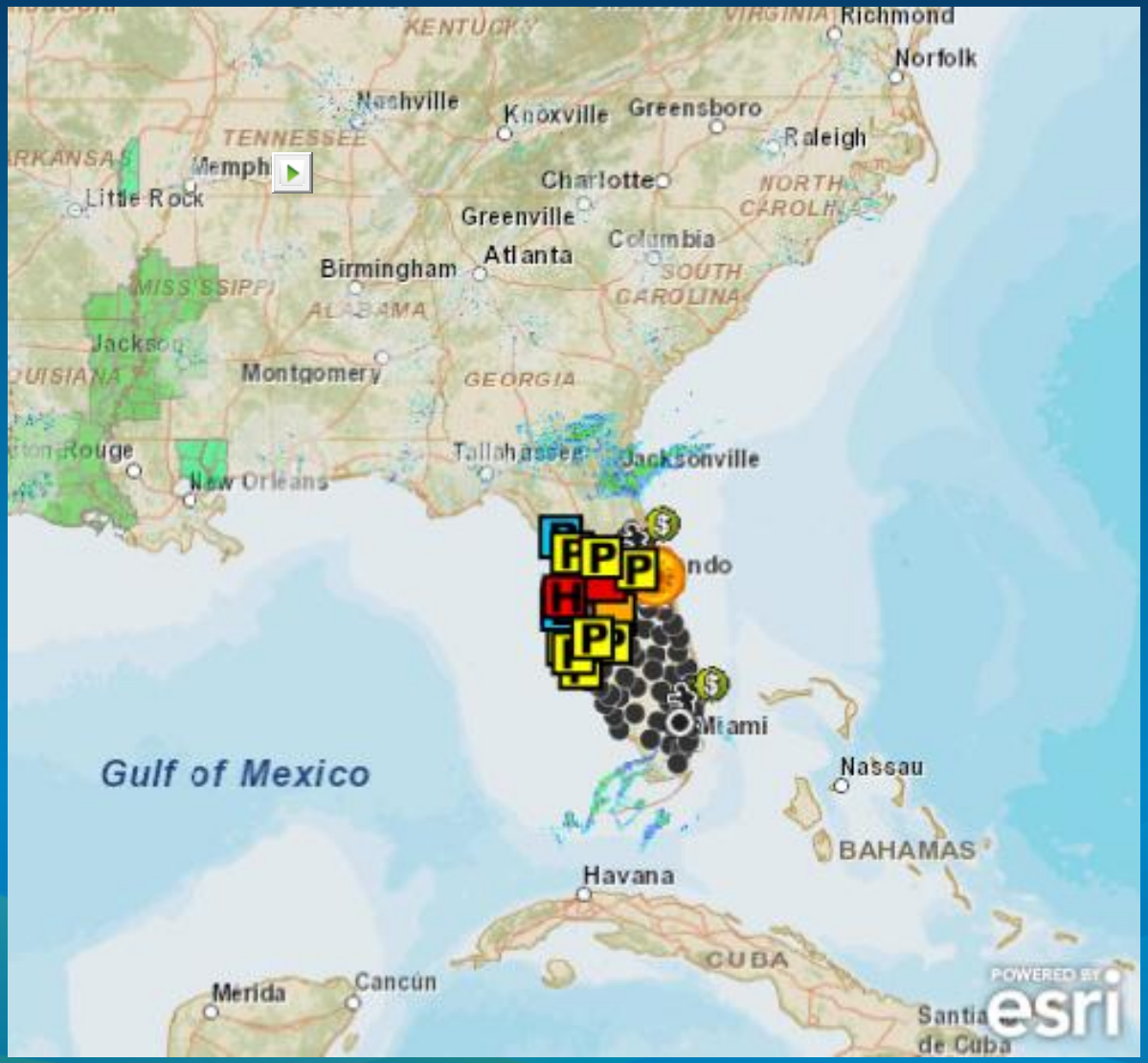
…And the beginning of another

GIS and its relevance with time

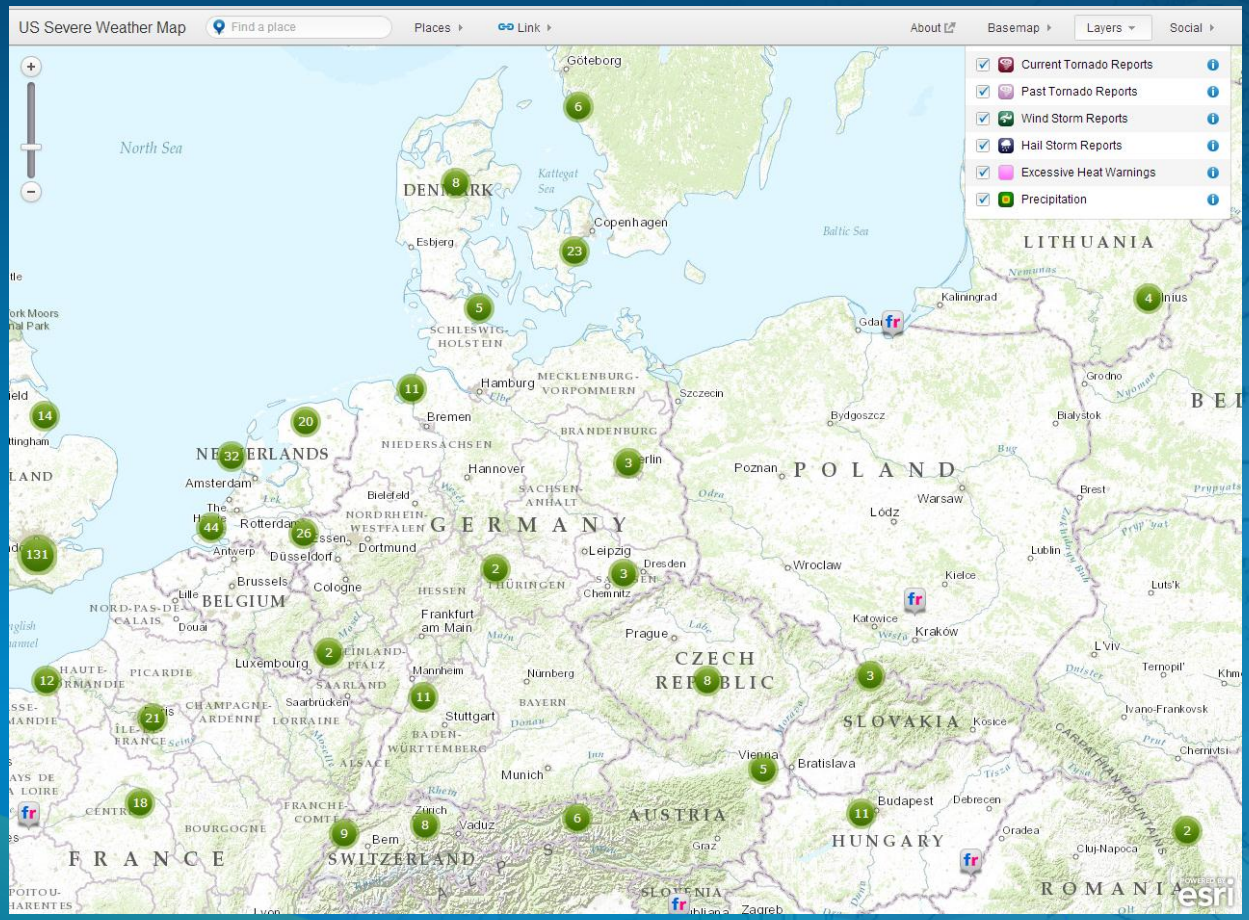
Geospatial data user base is growing

…Mapping for everyone

People creating and sharing maps

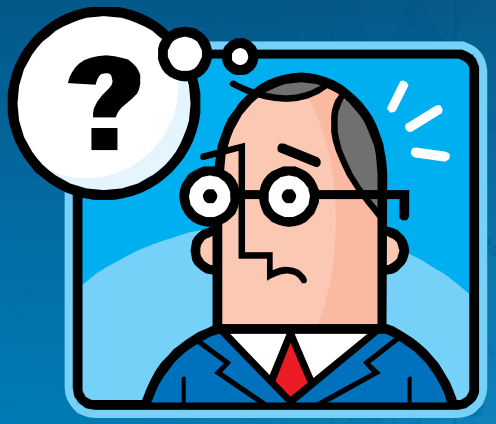


Expressing themselves through maps



And creating new apps.

But before going any further…



What is this all about?

What every Manager Needs to know about Cloud GIS

- **What is Cloud Computing?**

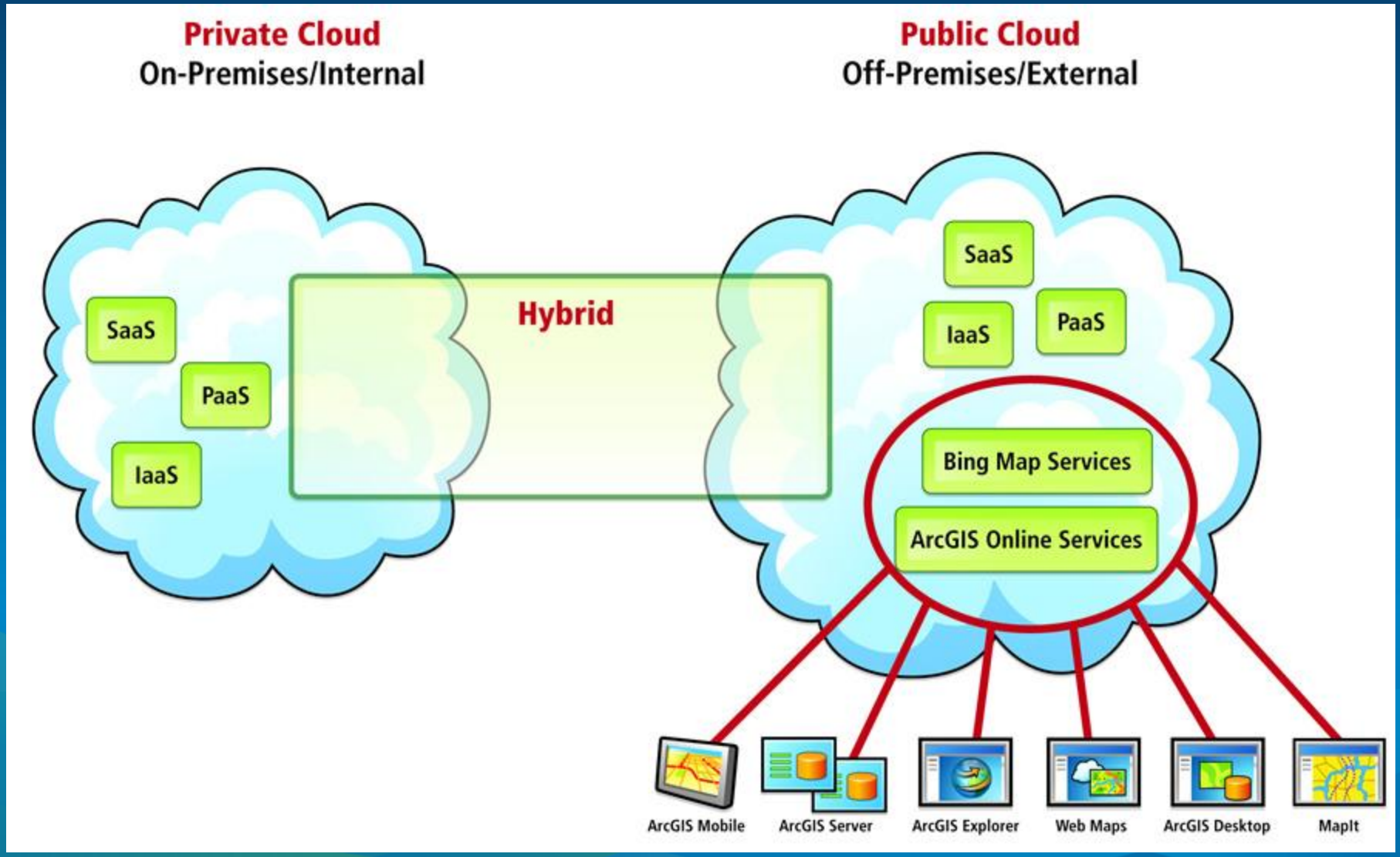
  Cloud computing furnishes technological capabilities—commonly maintained off premises—that are delivered on demand as services via the Internet.

- **SaaS (Software as a Service)**
- **Platform as a Service (PaaS)**
- **IaaS (Infrastructure as a Service)**

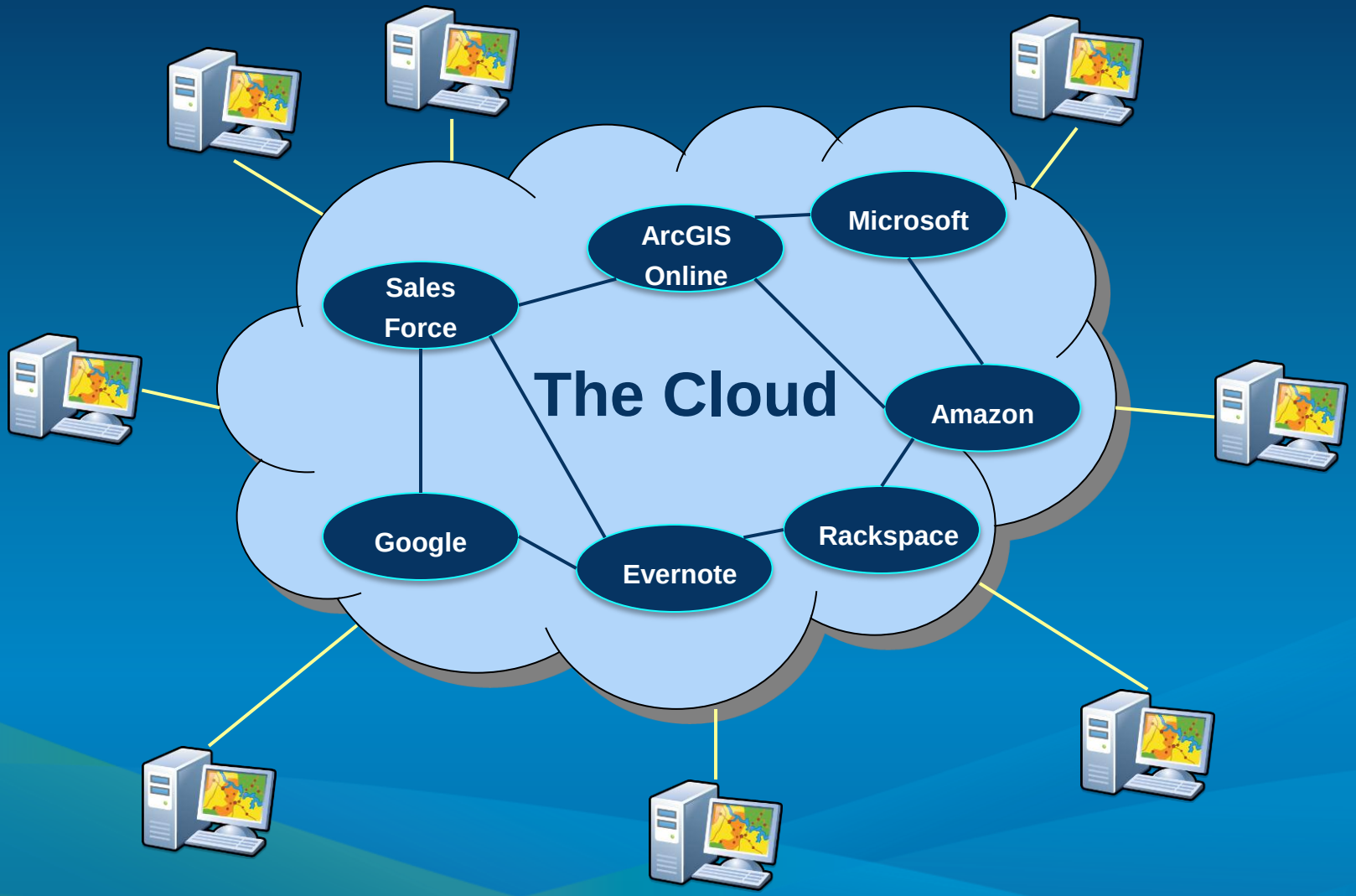
Cloud Computing Service Models

Software as a Service (SaaS)	**End-user applications, delivered as a service, rather than on-premises software**
Platform as a Service (PaaS)	**Applications platform or middleware as a service on which developers can build and deploy custom applications**
Infrastructure as a Service (IaaS)	**Compute, storage or other IT infrastructure as a service, rather than as dedicated capability**

Public versus Private Cloud

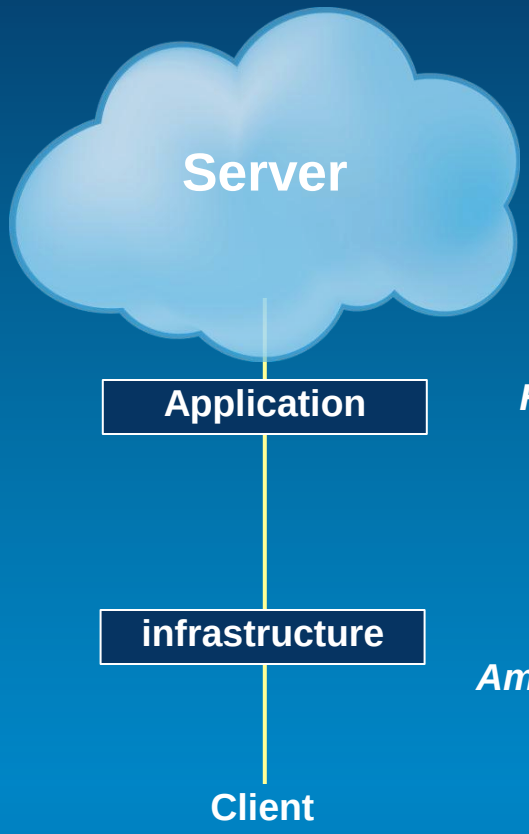


Web services in the cloud



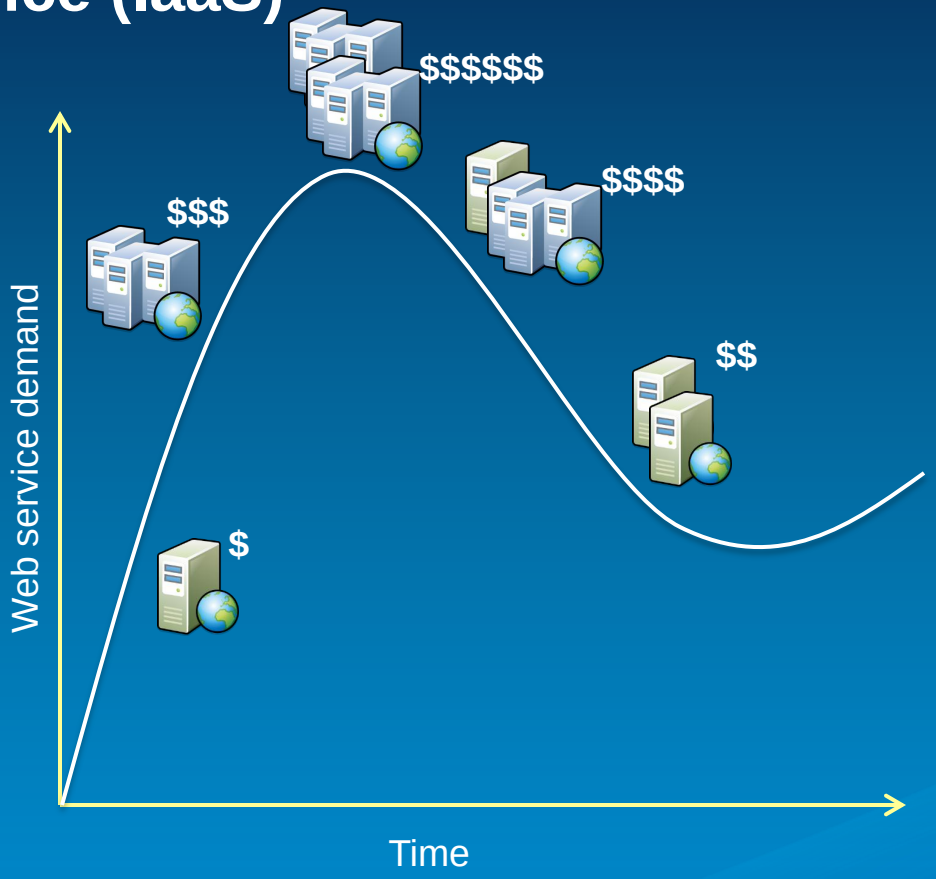
Web services in the cloud

Jargon	Examples	ArcGIS
SaaS Software as a Service	***Sales Force Automation System***	***Hosted Services ArcGIS Online***
IaaS Infrastructure as a Service	***MS Outlook Server Amazon Web Service***	***ArcGIS Server Amazon Web Service***



Software as a Service (SaaS)

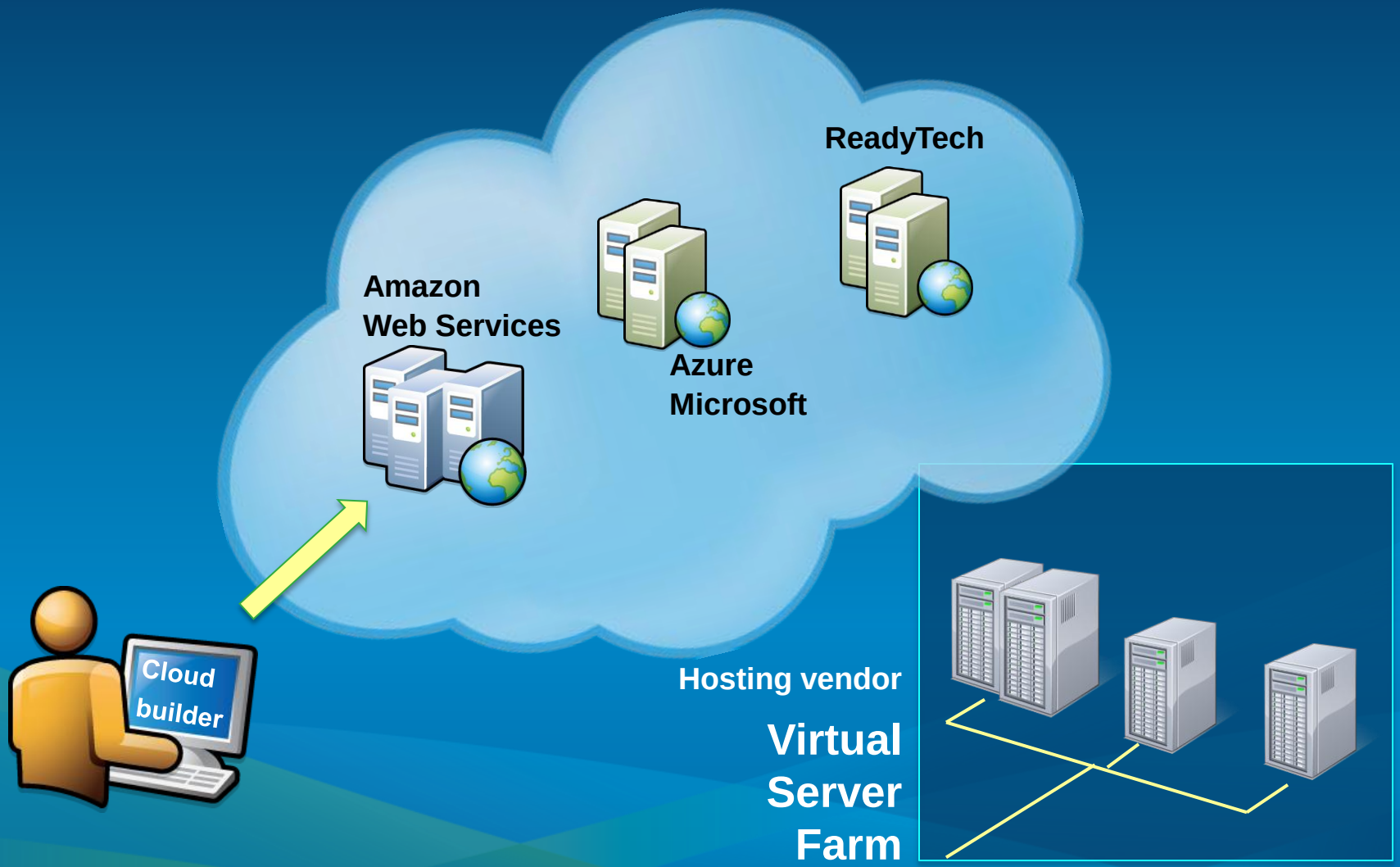
Infrastructure as a Service (IaaS)



Benefits of a Cloud-based solution

- **Quick to deploy**
- **Internet out-of-the-box**
- **Pay as you go elastic scalability**

ArcGIS Server in the cloud

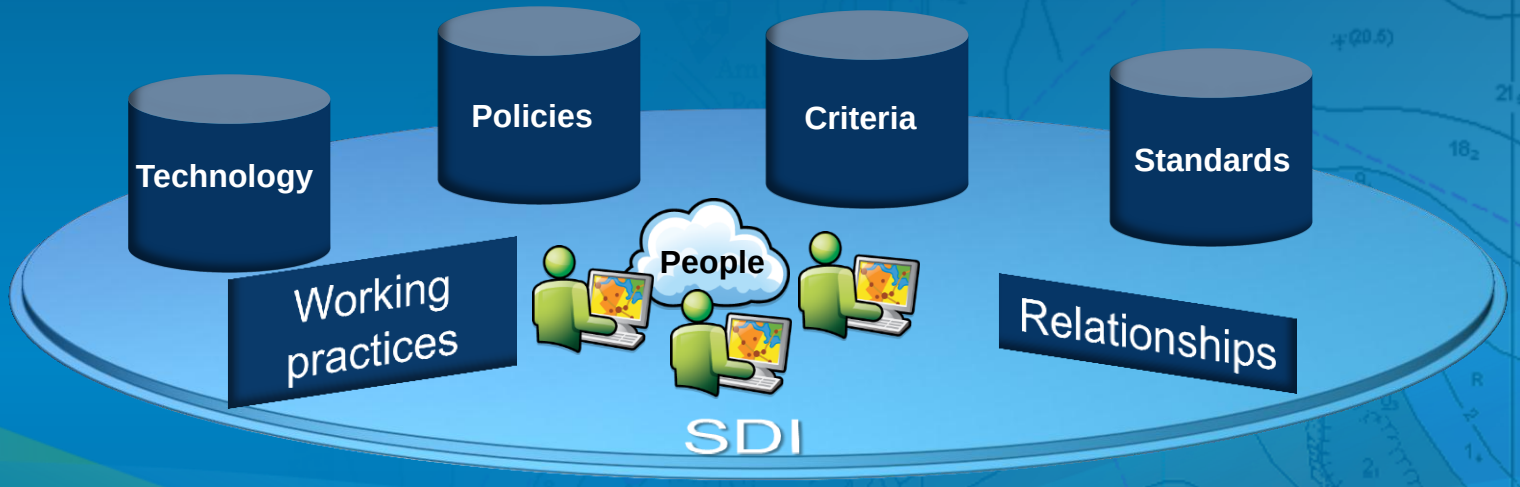


A Few Cloud Benefits

Lower Total Cost of Ownership	Reduced ongoing and life cycle costs
Increased Availability	Always on, always available
Faster Application Delivery	Expedites time to market; competitive advantage
Flexible Model	Scales by demand; no wasted capacity
Enables Collaboration and Community Computing	Platform for easier and faster information sharing , mobile workforce
Improved Business Continuity	Inexpensive disaster recovery options
Rental Pricing Model	Pay-as-you-go; pay-in-advance; try before you buy

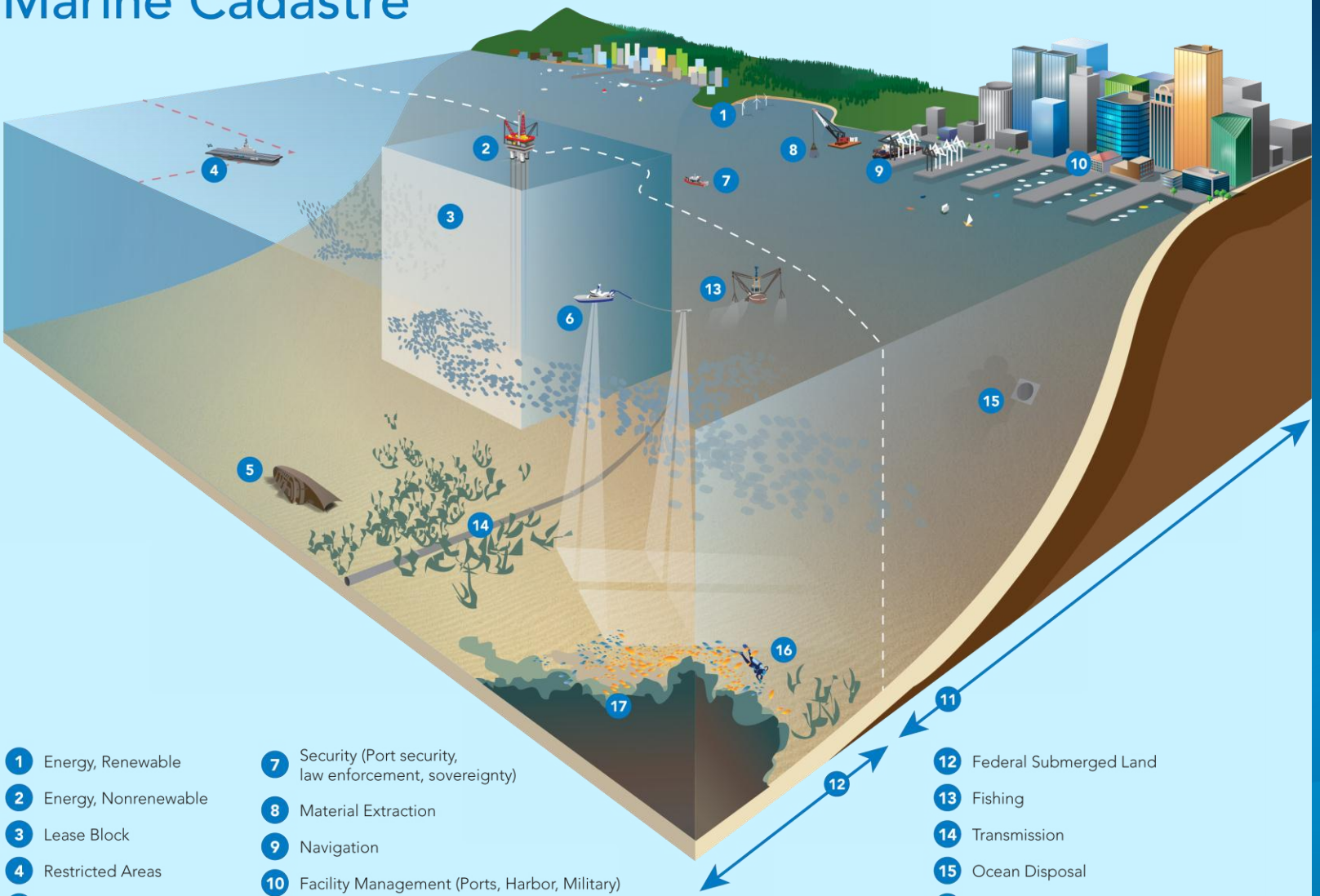
How to efficiently enable data sharing: SDI+Cloud

- **SDI is "the relevant base collection of technologies, policies and institutional arrangements that facilitate the availability of and access to spatial data." (Ref: Global Spatial Data Infrastructure Cookbook).**



- **Enables more comprehensive analysis at all levels of government, commercial, not-for-profit sectors and academia**
- **Describes HW, SW and system components**

Marine Cadastre

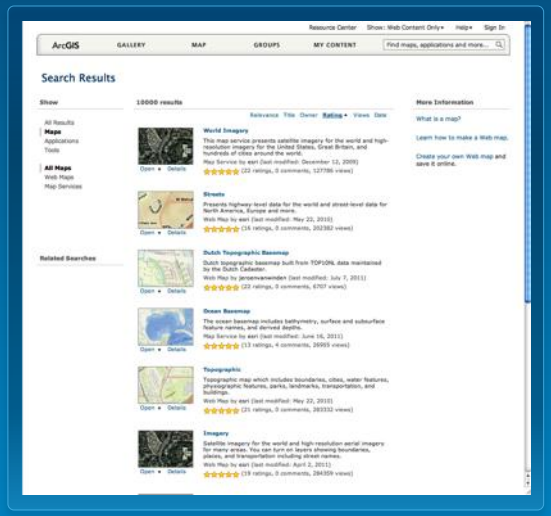


1. Energy, Renewable
2. Energy, Nonrenewable
3. Lease Block
4. Restricted Areas
5. Heritage Protected Areas
6. Exploration
7. Security (Port security, law enforcement, sovereignty)
8. Material Extraction
9. Navigation
10. Facility Management (Ports, Harbor, Military)
11. State Submerged Land
12. Federal Submerged Land
13. Fishing
14. Transmission
15. Ocean Disposal
16. Recreation Areas
17. Marine Protected Areas

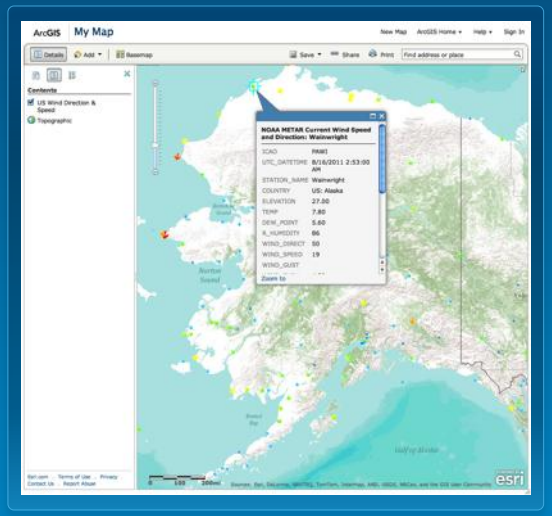
ArcGIS Online for Organizations

Demo

ArcGIS Online Provides the Capabilities to . . .



Organize and share authoritative content



Make it easy for anyone to make and use maps

Leverage enterprise cloud computing (hosted & on-premises)

ArcGIS in Ocean Observation and Coastal Zone Management

- Ocean Use Planning
- Marine Cadastre
- Northeast Ocean Data
- Duke Marine Geospatial Ecology Tools
- Canarias Integrated Marine Data Repository (www.redmic.es/web/)

Some current projects using ArcGIS Online

Eye on Earth project

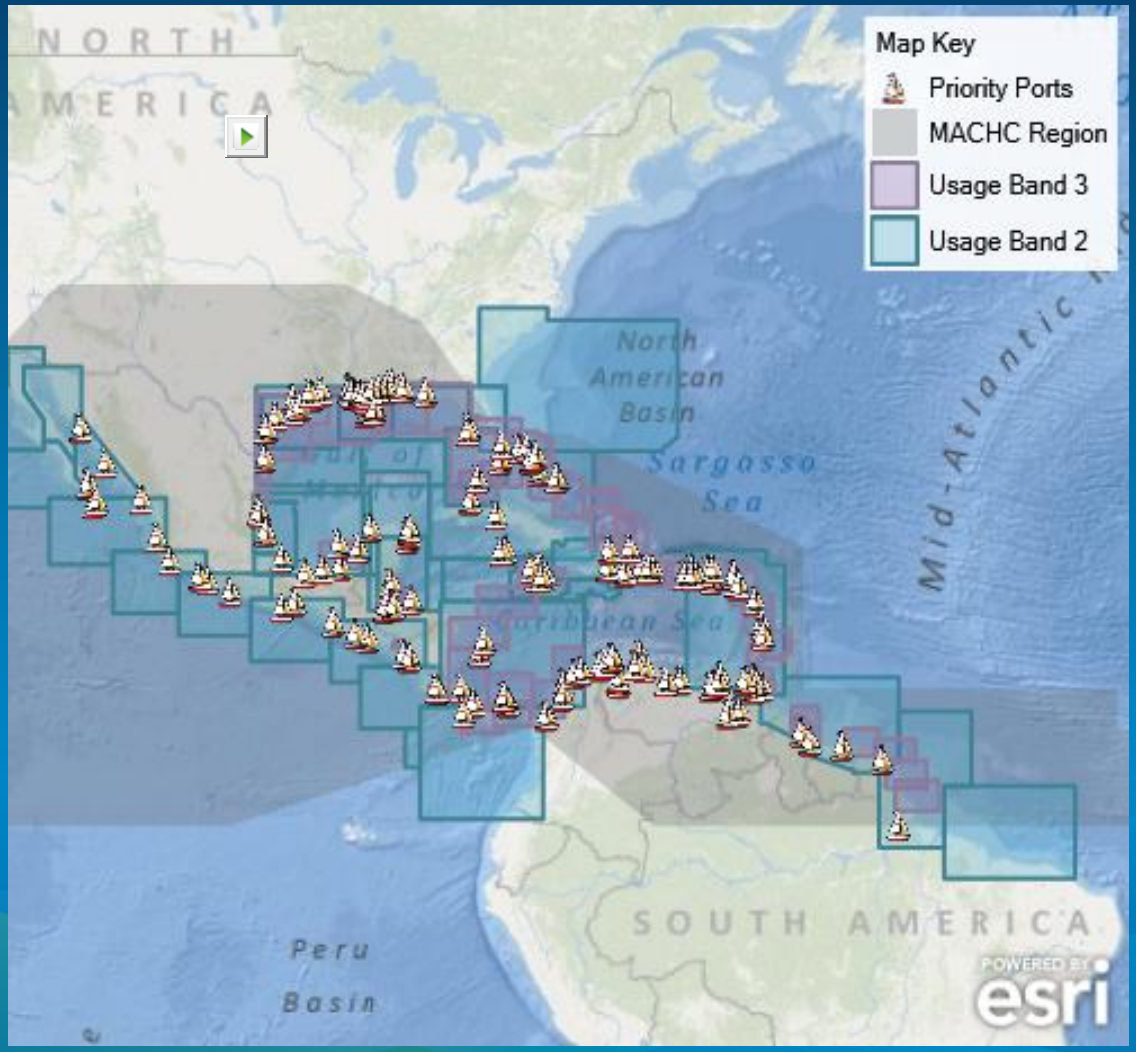
- Eye on Earth: “a global public information network for creating and sharing environmentally relevant data and information online through interactive map-based visualizations”
- IOOS, NANOOS and SECOORA DMAC project
- Collaboration with the European Environment Agency (EEA)
- Esri’s participation
- Pilot to focus on a common IOOS presentation for a limited subset of data (SECOORA and NANOOS regions)
  - Water levels
  - Near surface water temperature and salinity
- Eye on Earth

SeaSketch

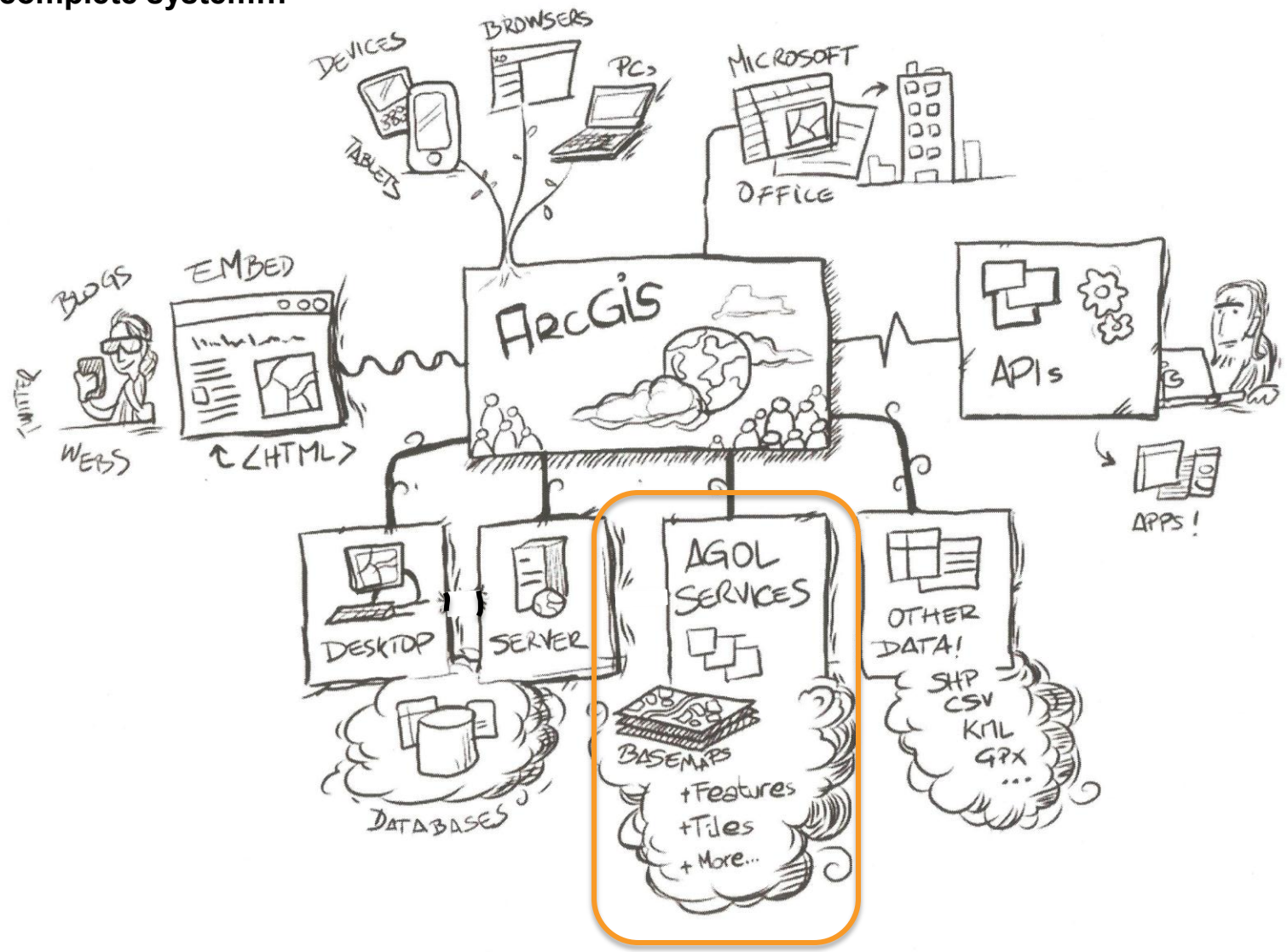
- Stakeholders and public agencies engaging in collaborative and science-driven planning for the Oceans
- Invite users and organize them into groups
- Assign groups different permissions
- Add layers and organize the data layers list
- Set up and moderate spatial discussion forums
- Begin in the process of developing custom analytical reports (sketch classes)

Seasketch.org

Intelligent Web Maps Can Be Used Everywhere



A complete system…



…or the use of its parts

Some of the greatest challenges to MSDI implementation today

- Mentality: HOs focused on safety of navigation only (the chart is not the end)
- Encryption (S-63)
- Discovering new areas where Hydrographic data can be exploited
- Not keeping up with new technologies and new standards
- Liability on provided data
- Copyrights
- Reluctance to change from old business models

esri

Thank you

Rafael Ponce

rponce@esri.com