ArcGIS Enterprise is a complete Web GIS in your own infrastructure.
ArcGIS Pro 1.4
Working towards ArcMap equivalency

- Graticules
- Image Georeferencing
- Sharing Analysis
- Sharing Locators
- Profile Graphs
- GDB Topology
ArcGIS Pro 1.4
Innovations in Pro

- Ortho Mapping
- Animated Symbols
- Dynamic Aggregation
- Multi-Patch Editor
- WFS Client
- SDK Configuration
ArcGIS Pro 1.4
Supporting Web GIS

- Geoanalytics and Raster Analytics
  - Extend Pro with the power of distributed processing across a cluster of servers
- Create, share and consume
  - Point Cloud Scene Layers
  - Styles
  - Floor Aware Maps and Scenes
  - Vector Tile Maps in any Projection
- New scripting language for expressions that are secure, capable and consistent across the platform
Insights

- New Paradigm (Visual, Intuitive, Responsive)
- Dynamic Analysis
- Very Fast Data Access

Linked and Responsive Charts and Maps

Integrated Spatial and Tabular Analysis

On-The-Fly Visual Models

Transforming Understanding with Interactive Analysis

Extending and Complementing Traditional Analysis…

… Supporting a System of Insight
In summary…

• Exploratory and Interactive Spatial Analysis
  - Core capability in ArcGIS

• Focus on GIS
  - Go beyond basic mapping…
  - Harness the full power of ArcGIS and Spatial Analysis

• Start with the questions, get the answers, document the workflows and tell your stories.
ArcGIS has a new way of processing vector and tabular data with both spatial (location) and temporal (time) components that is designed for fast distributed analytics and storage.
Go from noise to intelligence
GeoAnalytics Server adds to ArcGIS

- GeoAnalytics adds to existing ArcGIS analysis capabilities

**Geoprocessing** + **GeoAnalytics** + **Web GIS Layers**

- Powerful analytics
- Distributed analytics and storage
- Rich geoinformation model

more new extends
Why will I want to use GeoAnalytics?

• Applicable to anyone with ArcGIS Desktop
  - Helps you get “big jobs” done faster

• Applicable to anyone performing automated regular analysis on large datasets
  - Fully scriptable in custom solutions

• GeoAnalytics is “out of the box” and “ready to use” within your ArcGIS system
  - familiar and simple interfaces like ArcGIS Pro and the map viewer
  - integrated with the rest of the platform so results can be instantly visualized and refined
  - faster prototyping, R&D, and insight into your data
What is ArcGIS Image Server?

Server dedicated to the
Efficient Processing, Analysis and Dissemination
of Imagery and Rasters

• **Dynamic Image Services** – ‘Making your imagery accessible’
  - Serve large collections of imagery and rasters with dynamic mosaicking and on-the-fly processing

• **Raster Analytics** – ‘Extracting information from imagery’
  - Enabling massive distributed processing and analysis of imagery and rasters

Image Server is an additional server capability available with ArcGIS Enterprise 10.5
What is Raster Analytics?

A new way to create and execute spatial analysis models and raster processing chains which leverages distributed processing and storage

- Works with your existing imagery, rasters and GIS data
- Enable massive distributed processing and analysis
- Integrate Analytics into your workflows
Foundational Concepts

Raster Analytics adds to existing ArcGIS foundational concepts

- Dynamic Raster Functions
- Geoprocessing Models / spatial analysis
- On-the-fly processing
- Powerful analytics
- Server-based distributed processing and storage
- Scalable distributed analytics with persisted storage
- Web GIS Layers
- Portal
- Rich geoinformation model

more
more
new
extends
Raster Analytics is Powerful

Large Collection of Raster Functions

Math
- Square
- Square Root
- Arg
- Times
- Band
- Arithmetic
- Bitwise And
- Bitwise Left
- Calculator
- Bitwise Not
- Bitwise Or
- Exp
- Exp10
- Exp2
- Float
- ln
- Log10
- Minus
- Mod
- Negate
- Plus
- Power
- Round Down
- Round Up

Abs
- Abs
- Times
- Arithmetic
- Shift
- Arithmetic
- Cos
- Arithmetic
- Cos
- Add
- Arithmetic
- Sin
- Arithmetic
- Sin

Arithmetic
- Arithmetic
- ACos
- ACos
- Add
- Arithmetic
- ASin
- Arithmetic
- ASin

Band
- Band
- Band
- Band
- Bitwise Right
- Exp10
- Exp2
- float
- Int
- Log10
- Minus
- Mod
- Negate
- Plus
- Power
- Round Down
- Round Up

Correction
- Apparent Reflectance
- Geometric Correction
- Speckle Filtering (Lee,Frost,Kuan)

Visualization & Appearance
- Contrast and Brightness
- Convolutions
- Pan-sharpening
- Resample
- Statistics and Histograms

Data Management & Conversion
- Raster to Vector
- Vector to Raster
- Colormap
- Colormap To RGB
- Complex
- Grayscale
- Remap / Reclass
- Spectral Conversion
- Unit Conversion
- Vector Field
- LAS to Raster
- LAS Dataset to Raster
- Clip
- Composite
- Extract Bands
- Mask
- Mosaic Rasters
- Rasterize Features
- Reproject

Interpolation
- Interpolate Irregular Data
- Nearest Neighbor
- IDW
- EBK
- Swath

Surface Generation & Analysis
- Aspect
- Curvature
- Elevation Void Fill
- Hillshade
- Shaded Relief
- Slope
- Viewshed

Analysis: Image Segmentation & Classification
- Segmentation (Mean Shift)
- Training (ISO, SVM, ML)
- Supervised Classification

Analysis: Distance & Density
- Euclidean Distance
- Cost Distance
- Least Cost Path
- Kernel Density

Analysis: Overlay
- Weighted Sum
- Weighted Overlay

Analysis: Band Math & Indices
- NDVI / NDVI Colorized
- SAVI / MSAVI / TSAVI
- GEMI
- GVI (Landsat TM)
- PVI
- Tasseled Cap (Kauth-Thomas)
- Binary Thresholding

Analysis: Zonal
- Zonal Statistics

Python
- Custom Algorithms

* Does not contain all capability of Spatial Analyst

Chain functions together into Raster Models and apply them to answer complex questions

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Raster Analytics is Easy

• Easy to get started, it is "out of the box analytics"
  - Install Image Server on nodes -> start Raster Analytic services -> go
  - Your own infrastructure, Amazon, Azure
  - Scale up & down as required

• Great user experience
  - ArcGIS Pro: visual modeler to design simple and complex models
  - Portal UI: Run Raster Analytics Tools
  - Python and REST based API for developers

• Results are immediately available in your Web GIS
  - No publishing workflow required
  - All outputs are written in parallel to ArcGIS distributed storage
Solve New Problems with Raster Analytics

• Run models against data that is too big for single desktop
  - Cover big geography
  - High resolution
  - Large Collection

• Run models to meet time constraints

months  weeks  days  hours  minutes

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Typical Customer Requirements

• ‘Desktop does not cut it’
  - “ArcGIS, Erdas Imagine, ENVI, PCI, QGIS,… Desktop raster/image processing takes too long / will not work”

• ‘Persist My Product’
  - “I love the power of on-the-fly processing, but need to persist the product”

• ‘Scale My System’
  - “I have this great … process, but need to run it every day on xxx datasets”

• ‘New Ideas’
  - “I can solve this problem if only I could ….”

• ‘Integrated Analytics’
  - “Don’t sell me parts, I need a system that enables me to ….”

• ‘Data too big to move’
  - “I have xxx TB of data in my system and there is no way to move it”
  - “I want to use the Landsat/Sentinel/DigitalGlobe/Planet/…. Imagery available on xxx cloud”
What does ArcGIS Enterprise mean to you?

- All ArcGIS for Server customers on maintenance will get ArcGIS Enterprise

- Upgrading from previous versions of ArcGIS for Server to ArcGIS Enterprise is very straightforward

- Customers who have not adopted Web GIS pattern – i.e. moved from standalone ArcGIS Server to include the portal and other newer components – should!
Top takeaways

- **More than a branding change**
  - Over the past many releases, we have been maturing the Web GIS pattern. With ArcGIS Enterprise it is now fully mature in your own infrastructure.

- **Encourage current ArcGIS Server customers to move to full Web GIS pattern**
Understanding our world.