Ecology's Comparison Between Google Earth and ArcExplorer

Test environment	3.46 GHz processor 3.5 GB of RAM Windows XP workstation at Lacey 3rd floor Started test with a cleared memory cache and disk cache Set **memory cache to 400 MB** and **disk cache to 400 MB** for both products Always had vendor Air Photos turned on - ESRI or Google, depending on app				
Purpose	The purpose of this document is to provide the BAT with information on user experience and technical details of Google Earth and ArcGIS Explorer.				
	Google Earth (4.3)	**Performance**	**ArcGIS Explorer (build 500)**	**Performance**	**Comments**
Price	$400		Free		
Type	Desktop application		Desktop application		
Search for a location					
By Address	Yes	1 second, then app zooms the address	Yes	2 seconds, then app zooms the address	Google appears to have a more robust error correction first try = "420 Sherman st, Olympia" ArcGIS needed "420 Sherman st, Olympia, WA" - actually address "420 Sherman st sw, Olympia, WA, 98502"
By DMS	Yes	1 second, then app zooms the address	Yes	1 second, then app zooms the location, imagery took several seconds to draw	46° 14' 60.00", -123° 14' 60.00", High resolution imagery on ArcGIS took several seconds to draw but much better than Google's imagery at this location, ArcGIS uses the Go to dialogue,
By Decimal Degrees	Yes	1 second, then app zooms the location	yes	1 second, then app zooms the location	47.5 -123.5, Google use the same text box, ArcGIS uses the Go to dialogue, Google places a mark on the map - ArcGIS allows you to zoom to the area or place a mark on the map
Output					

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Print	Yes	Google gives you different output reduction	Yes		Good for users whom need to put this information in document.
Saving	Yes		Yes		Both do this a bit different, ArcGIS Explorer seems a bit more robust by saving a .nmf file with all the data connections, location, and items completed instead of saving into Google's My places
Screen capture	Yes		Yes		Google Earth has a copy image and save image - one provides BMP and the other provides a jpeg, ArcGIS provides a BMP
Measurement					
Measure distance by line	Yes	1 second	Yes	1 second	Both allow you to change your measurement units
Measure distance by polygon	Yes	1 second	Yes	1 second	Google provides a measure by radius function
Tools					
Reverse Geocode	No		Yes	8 to 15 seconds	good function for some site mangers
Identfiy	Yes	quick for KML data, not applicable for ESRI data sources	Yes	Varies	If a map service has many layers identfiy can take ~25 seconds
Driving directions	Yes		Yes		yes, Google appears to be a bit faster
Available Data and GIS Data integration					

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Vendor Air photos	Yes	2 seconds	Yes	2 to 4 Seconds	Both vendors provided air photos, but ESRI has high resolution color photos in rural area, Google's coverage focused on urban areas, ESRI content http://resources.esri.com/arcgisexplorer/index.cfm?fa=content_layers
Vendor Roads	Yes	2 seconds	Yes	2 to 3 Seconds	Both vendors provided street layers, they are nicely labeled, Google looks a bit better but they are very comparable, ESRI content http://resources.esri.com/arcgisexplorer/index.cfm?fa=content_layers
Shapefile	Yes	5 seconds	Yes	10 seconds, draws quickly once it is cached ~2 seconds	used highway shapefile, Google is nice because it maintained vector highways where as ArcGIS Explorer Rasterizes vector data, can might the display look "cluttered" at various display levels
Geodatabases	No		Yes	5 seconds, draws quickly once it is cached ~2 seconds	tested a File Geodatabases with 30 points
ArcIMS	No		Yes	20 seconds to completely draw(tiles in images), draws quickly once it is cached ~2 seconds	Identify was very slow(~20 for a facility site map service) because it identifies every thing in the ArcIMS map service even if not display.
ArcGIS Server	No		Yes	8 seconds for the NAIP photography to completely draw(tiles in images), once it is draws and is cached ~2	Can not turn off individual layers from a map service, did not display all map services from http://ecyaplcyadrd1/arcgis/services, not sure why but the NAIP photography worked well

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SDE	No		Yes	10 seconds, draws quickly once it is cached ~2 seconds	SDE data is a bit slow to display ~10 seconds for a map, 5 seconds for identify of the feature
WMS service	Yes	10 seconds	Yes	15 to 20 seconds	Overall WMS integration is easier with ArcGIS Explorer, but is possible with Google earth, drawing appears faster in Google
CSV file with lat long data (add x y data)	No		Yes	~ 2 seconds	Yes, tested with MyEIM CSV with 10 hits, ArcGIS let you pick your lat long fields
CSV file with address data (geocoding)	Yes ? Did not work with sample CSV	Not sure because of an error	Yes	~ 4 seconds for 10 addresses	ArcGIS Explorer appears to have a better tool allowing you to pick the fields for geocoding, Google tries to do it automatically
KML	Yes		Yes		pop windows handle as a marker in Google Earth, ArcGIS open this in a new web browser window = ArcGIS not as user friendly
KML network linked	Yes		Yes		same as above
Extensibility					
Turn off or remove vendor data	Partially		Yes		cannot disconnect Google primary databases, but you can turn them off and minimize the window
Add and remove tools/task	No		Yes		use the manage task dialogue in ArcGIS, could not find that in Google
Create your own tools/task	No		Yes		could use ArcGIS Server to create custom GIS analysis tools, I tested a demographic analysis tool provided by ESRI http://resources.esri.com/arcgisexplorer/index.cfm?fa=content_tasks
Tester Comments (Ian Mooser)					

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Google Earth	Over good appears to provide performance for Google cached content, but the inability to connect to ESRI data sources is a n		
	Negative is the cost of the application($400)		
ArcGIS Explorer	Seems slower than ArcGIS to load data from SDE or other data sources, people could consider this slow performance?		
	But, once the data is cached in an area it is much faster and improves , I can not compare this to Google.		
	I dislike that Vector data is rasterized because at certain map scales it does always display well.		
	Integration of spatial analysis such as demographics is very powerful. http://resources.esri.com/arcgisexplorer/index.cfm?fa=c		
	This would be a good desktop app to give **employees a lightweight "GIS Data Browser",** Google Earth can not do this in ou		

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