



# Enterprise GIS: Performance and Scalability

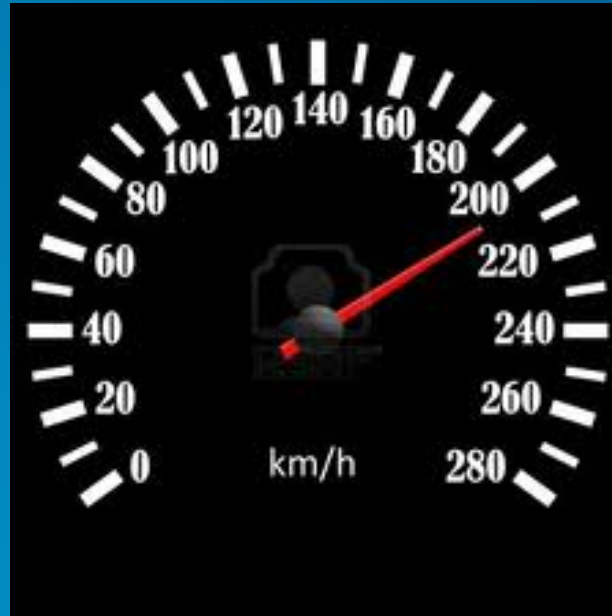
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Frank Pizzi, [fpizzi@esri.com](mailto:fpizzi@esri.com)

# Definitions

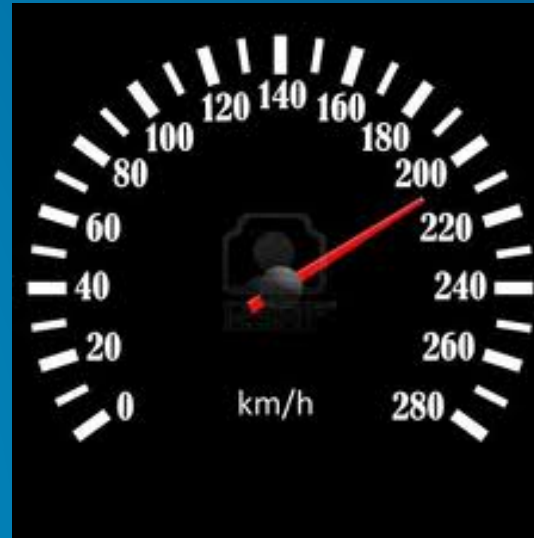
# Performance

- Speed, e.g. response time (seconds)



# Scalability

- The ability to increase output and maintain acceptable performance



# Capacity

- The maximum level of output the system can produce, e.g.
- X cars/sec
- X maps/sec



At capacity



Over capacity

# Bottleneck

- Resource(s) limiting the performance or capacity



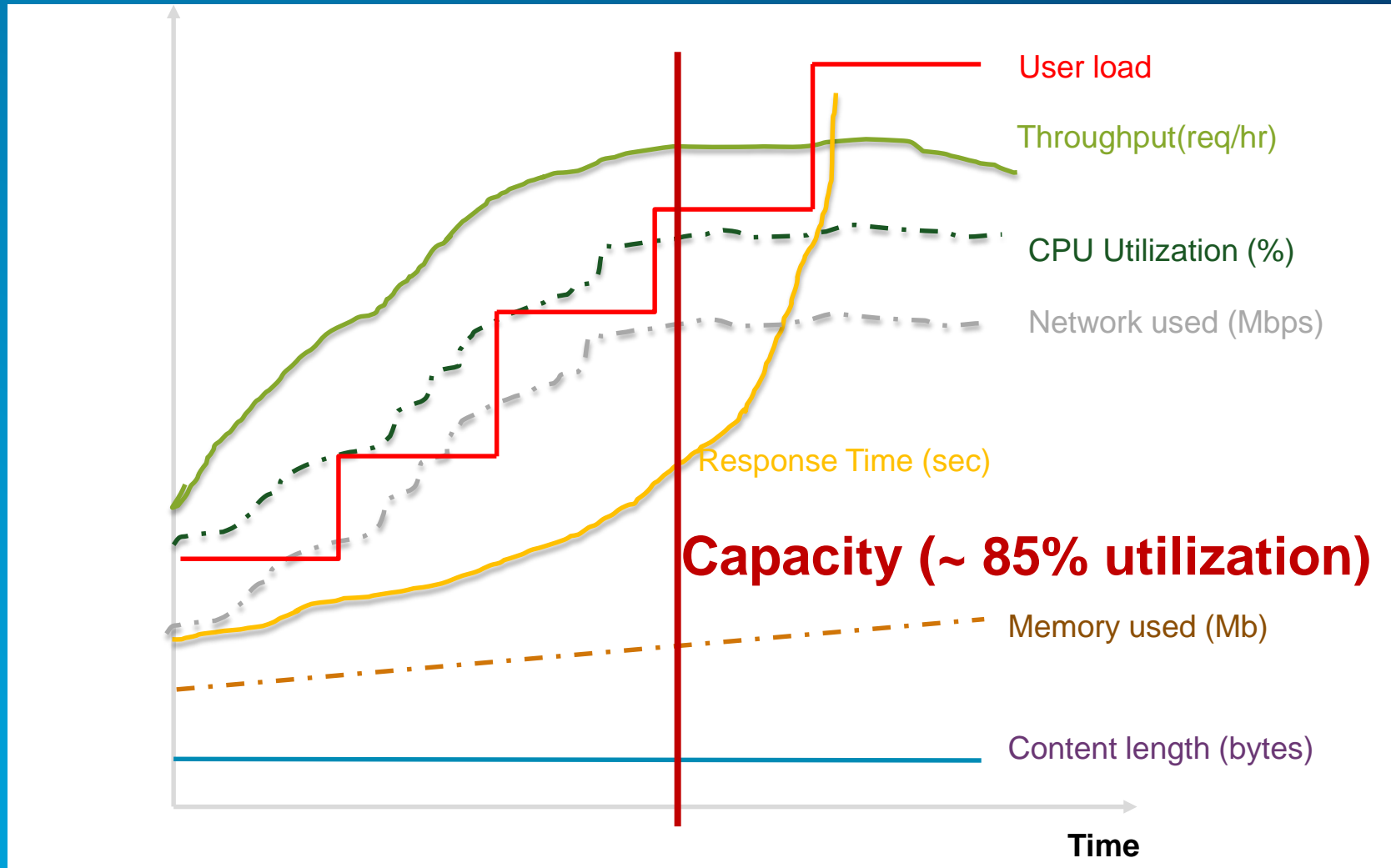
Not bottleneck



bottleneck

Think of :  
Lanes -as CPU processor  
Toll -as ArcGIS Server instances  
Cars -as map requests

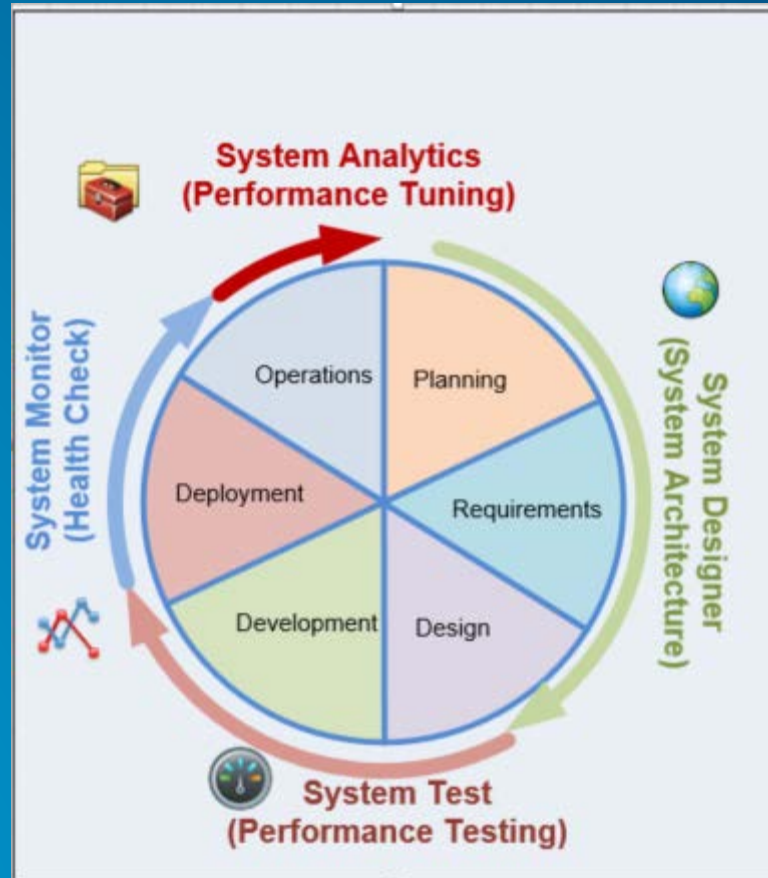
# Capacity



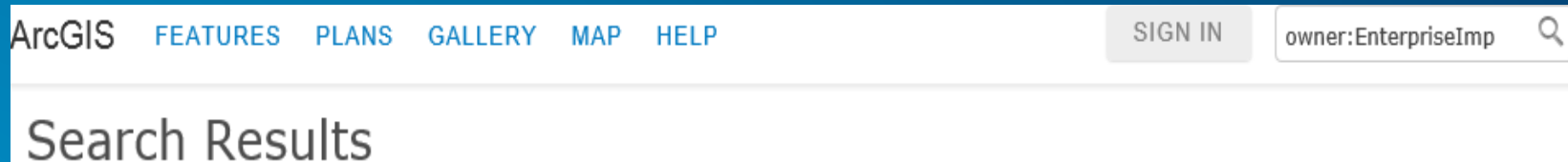
# Process and Tools



# Process and Tools



# System Tools overview

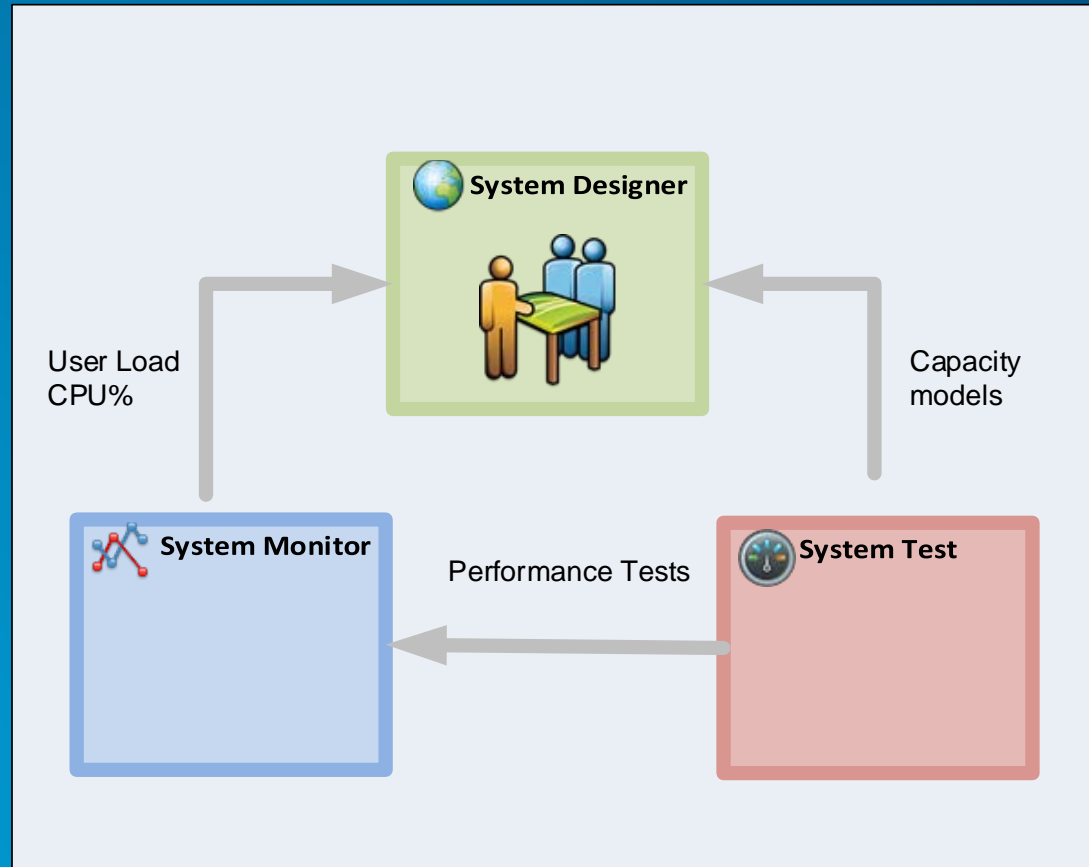


- <http://www.arcgis.com>
- `owner:EnterpriseImp`
- Show ArcGIS Desktop Content

A screenshot of the search results page for 'owner:EnterpriseImp'. The page shows 6 results. On the left side, there is a sidebar with the following sections: 'All Results' (with sub-links for Maps, Layers, Apps, Tools, Files), a checked checkbox for 'Show ArcGIS Desktop Content', and 'Related Searches' (with the text 'Find groups owned by "EnterpriseImp"'). The main content area displays the following results:

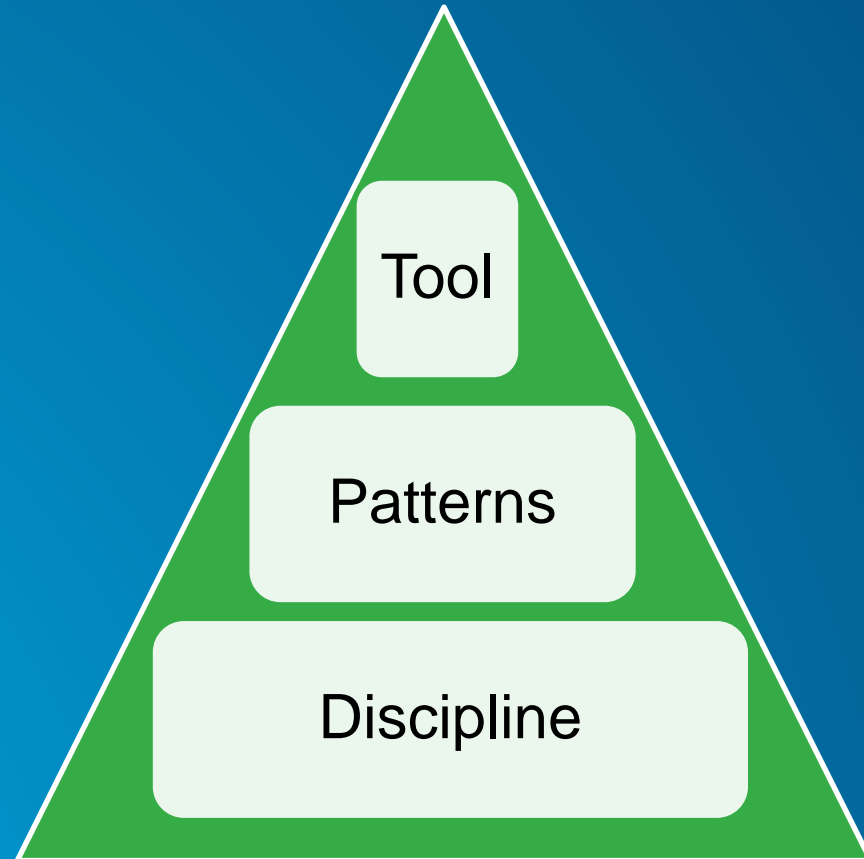
- System Designer**: A comprehensive tool for designing and capacity planning of GIS solutions. It is developed by Professional Services and it is a part of Professional Services consulting practice. Desktop Application Template by EnterpriseImp. Last Modified: June 18, 2014. (5 ratings, 10 comments, 2,601 downloads)
- System Monitor (1.1.3)**: System Monitor is a tool for monitoring and analyzing your enterprise GIS system. It is developed by Professional Services and it is a part of Professional Services consulting practice. Desktop Application Template by EnterpriseImp. Last Modified: June 30, 2014. (6 ratings, 18 comments, 2,619 downloads)
- System Test**: A performance and load testing tool designed specifically for testing gis services and applications. It is developed by Professional Services and it is a part of Professional Services consulting practice. Desktop Application Template by EnterpriseImp. Last Modified: July 4, 2014. (2 ratings, 8 comments, 1,848 downloads)
- mxpperfstat**: An ArcGIS Engine command line tool to diagnose typical mxd performance problems. Supports ArcGIS 9.3, 10, 10.1, 10.2 versions. Desktop Application Template by EnterpriseImp. Last Modified: December 20, 2013. (3 ratings, 0 comments, 1,290 downloads)

# Relationship between System Tools



# System Tools framework

System Tools are not just tools





# Infrastructure Capacity Planning

# Provide sufficient hardware resources

Most systems are CPU bound

**GIS Systems are bound by:**

- 1. CPU - typically**
- 2. Memory – when large number of services**
- 3. Disk – Image Service, Synchronization**
- 4. Network – low bandwidth deployment**
- 5. Poorly configured virtualization can result in 30% or higher performance degradation**

*Most well-configured and tuned GIS systems are CPU bound.*

# Infrastructure

## Memory requirements

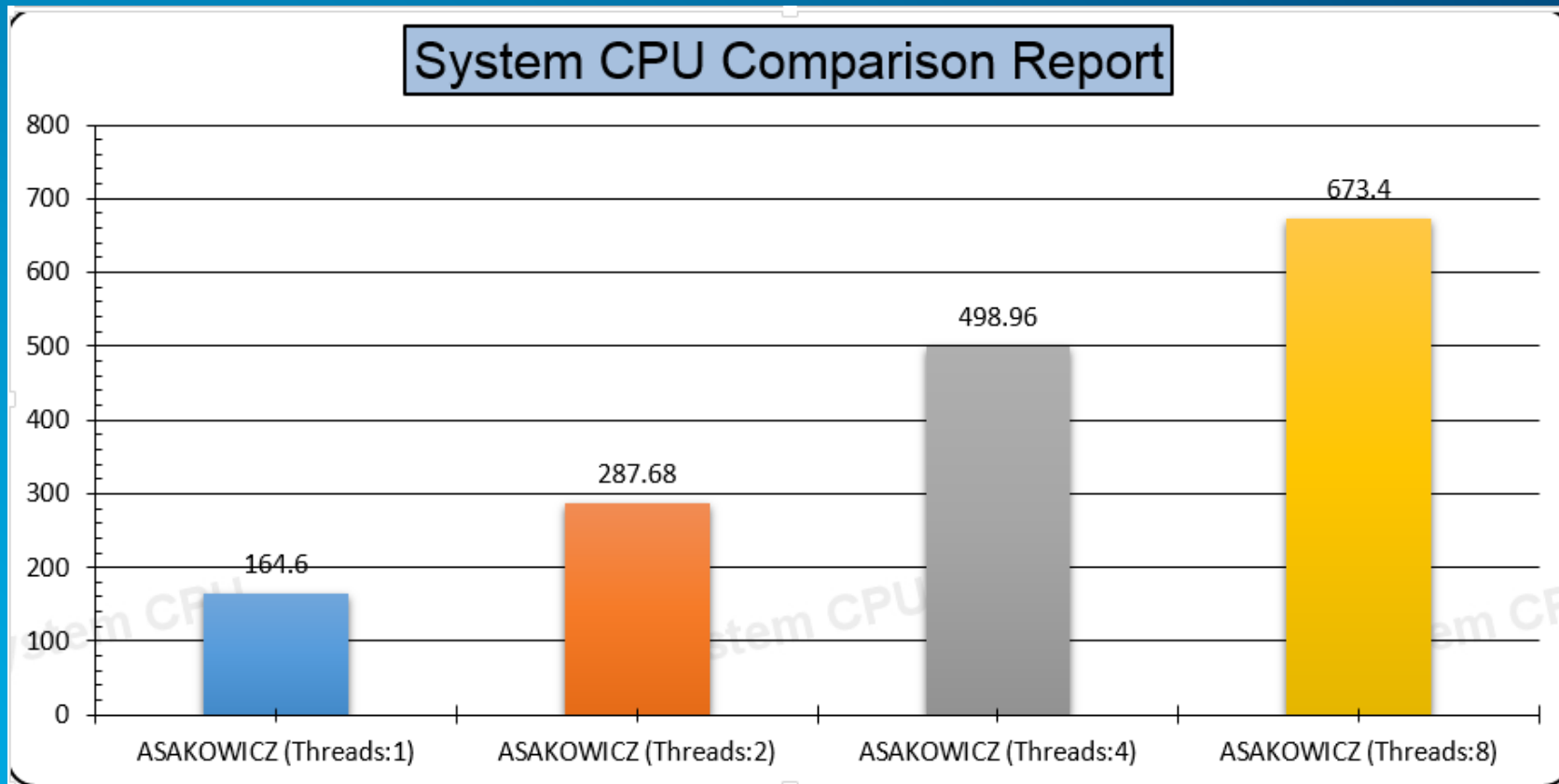
Item	Low	High
ArcSOC Map	50 MB	500 MB
ArcSOC Image	20 MB	1,024 MB
ArcSOC GP	100 MB	2,000 MB
XenApp Session	500 MB	1.2 GB
Database Session	10 MB	75 MB
Database Cache	200 MB	200 GB

*Wide ranges of memory consumptions*

# Infrastructure

Hyper threading does not double throughput

- System Test case: 4 physical, 8 logical core

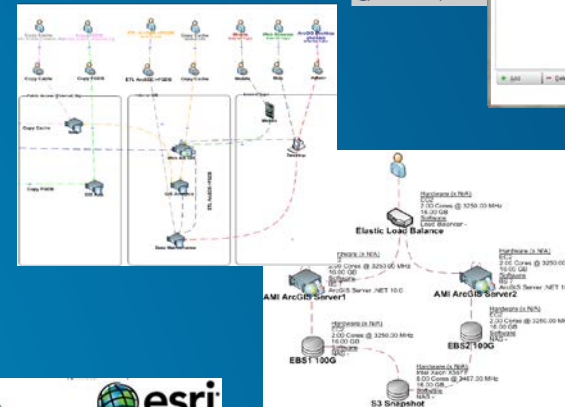
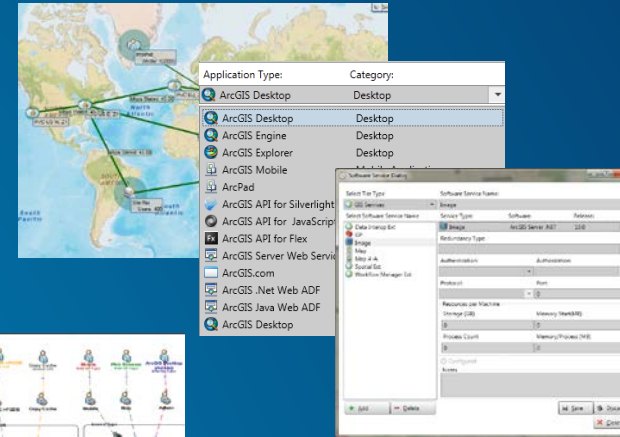




# System Designer

Solution Architecture design methodology

- Gathering requirements
- Designing
- Capacity: CPU, Network, Memory
- Reporting



# System Designer output

System Designer - UC2015 - (AVWORLD\andr3665) Solution: << Default Solution >>

Home Administration

Project: UC2015

Solutions

- CapacityTestSampleWorldCity
  - Applications
    - Desktop
    - Mobile
    - Web
  - Sites
    - Data Center
    - Users

Capacity Model Workflows Operations Hardware Network Software License and Cost

Valid Config	Model	Workflow	Operation	Error	Service Type	Wkf/hr	Active Users	Pacing(sec)	Load Factor %	Op/hr Calc	Occ	RtMax(sec)	RtMax Calc(sec)	Th
<input checked="" type="checkbox"/>	Users	Web	SampleWorldCitt	<input checked="" type="checkbox"/>	Map	79,366	0	0.00	0	79,366	1	5.0	0.13	

Model Review Model Assigned

Selected Model

Service Type: None Model Name: None

Model	Function	Tier	Modified	Service Time(sec)	CPU Queue (sec)	CPU Cores Calc	Modified	Mb/Op	Mbps Calc	Network Queue(sec)	Server	Hardware
<input checked="" type="checkbox"/>	Web Browser	Client	<input type="checkbox"/>		0.000	0.00	<input type="checkbox"/>	0.000	0.00	0.00	<input type="checkbox"/>	Users-Deskt
<input checked="" type="checkbox"/>	Map Service	GIS Services	<input type="checkbox"/>	0.120	0.013	2.50	<input type="checkbox"/>		0.00		<input checked="" type="checkbox"/>	Data Center

System Designer - UC2015 - (AVWORLD\andr3665) Solution: << Default Solution >>

Home Administration

Project: UC2015

Solutions

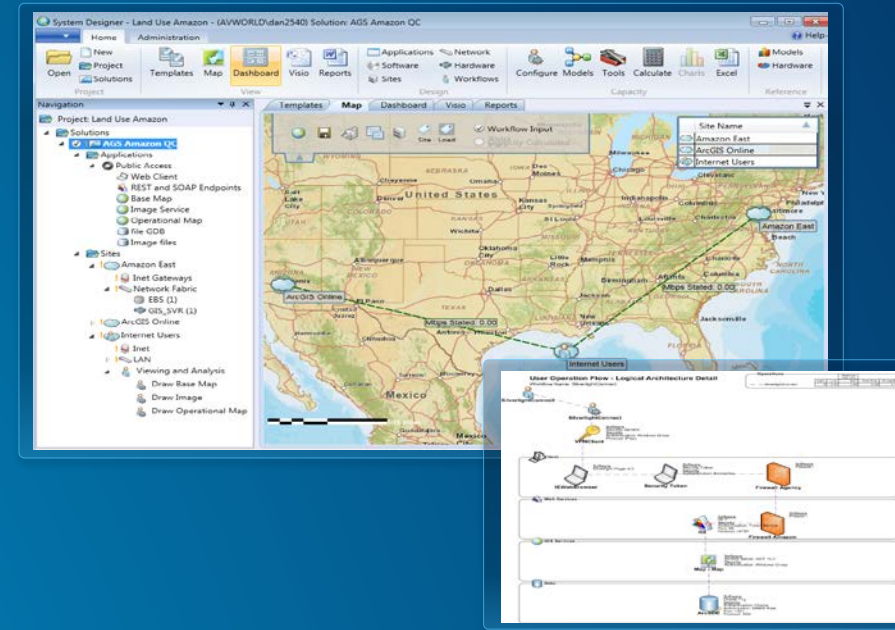
- CapacityTestSampleWorldCity
  - Applications
    - Desktop
    - Mobile
    - Web
  - Sites
    - Data Center
    - Users

Capacity Model Workflows Operations Hardware Network Software License and Cost

Capacity	Role	Vendor	Model	OS	Virtual	Calculate	CPU Cores	Util %	Max Util %	SpecRate/Core	CPU Cores Calc	C
<b>Data Center</b>												
<input checked="" type="checkbox"/>	Desktop	Esri	Generic System	Vendor OS	<input type="checkbox"/>	<input type="checkbox"/>	0	00.00	80.00	30.00	0.00	
<input checked="" type="checkbox"/>	Server	Dell Inc.	PowerEdge T110 II (Intel Xeon E3-1230, 3.20 GHz)	Windows Server 2008 R2 64-bit	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4	62.50	80.00	37.00	2.50	
<b>Users</b>												
<input checked="" type="checkbox"/>	Desktop	Esri	Generic System	Vendor OS	<input type="checkbox"/>	<input type="checkbox"/>	0	00.00	80.00	30.00	0.00	
<input checked="" type="checkbox"/>	Server	Dell Inc.	PowerEdge R210 II (Intel Xeon E3-1280V2, 3.60 GHz)	Windows Server 2008 R2 64-bit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4	00.00	80.00	48.00	0.00	

# Demo

## System Designer



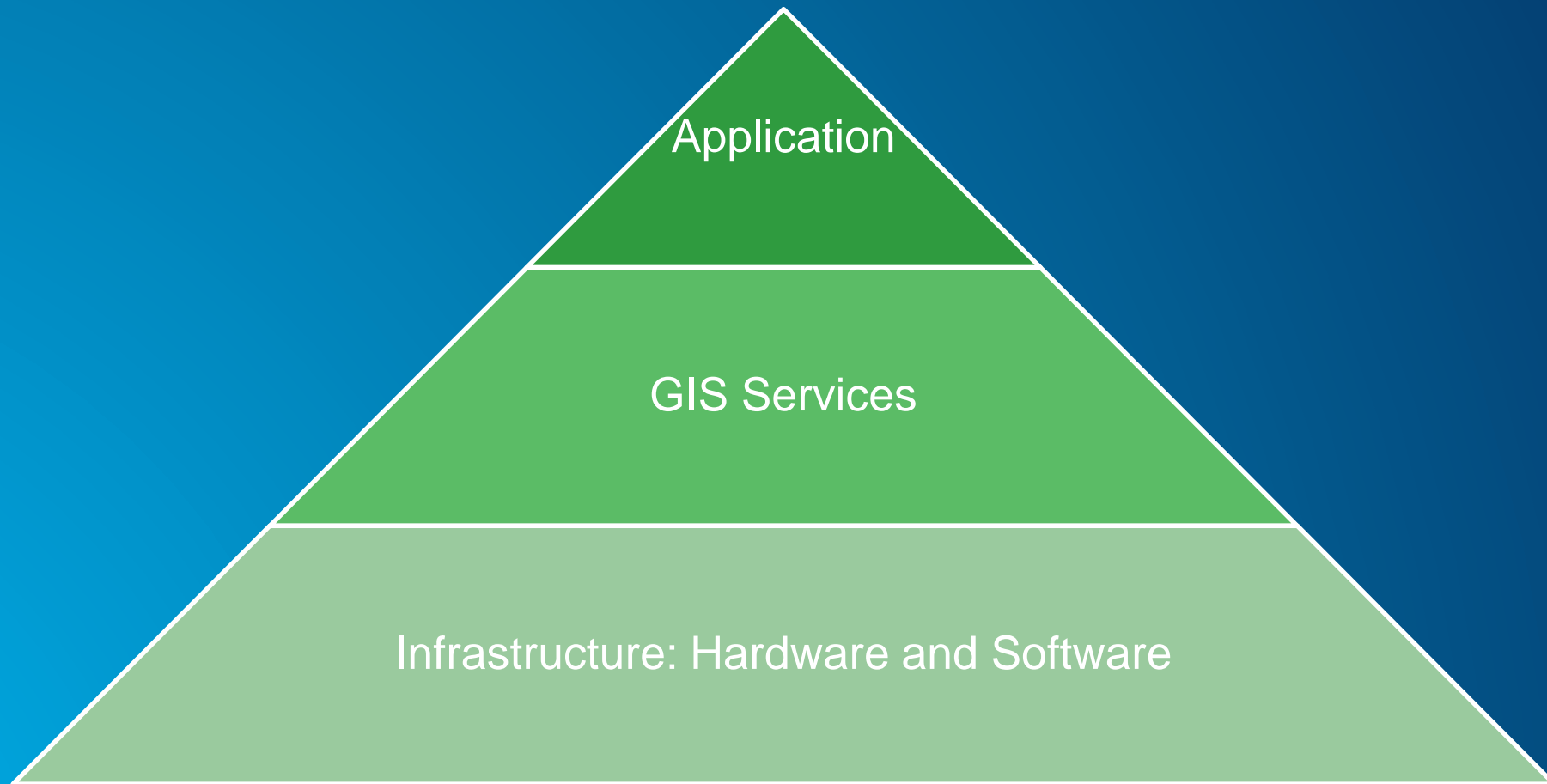


# Performance Testing

# Testing Objectives

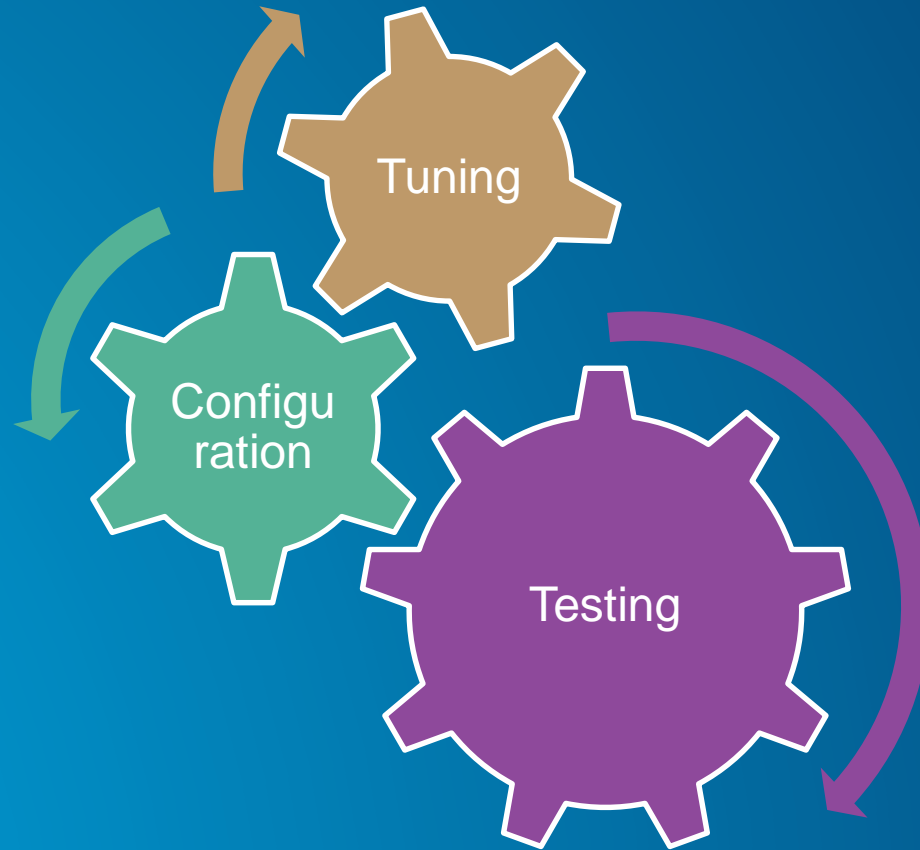
- **Meet Service-Level Agreement (SLA)**
- **Bottlenecks analysis**
- **Capacity planning**
- **Benchmarking different alternatives**

# Testing process



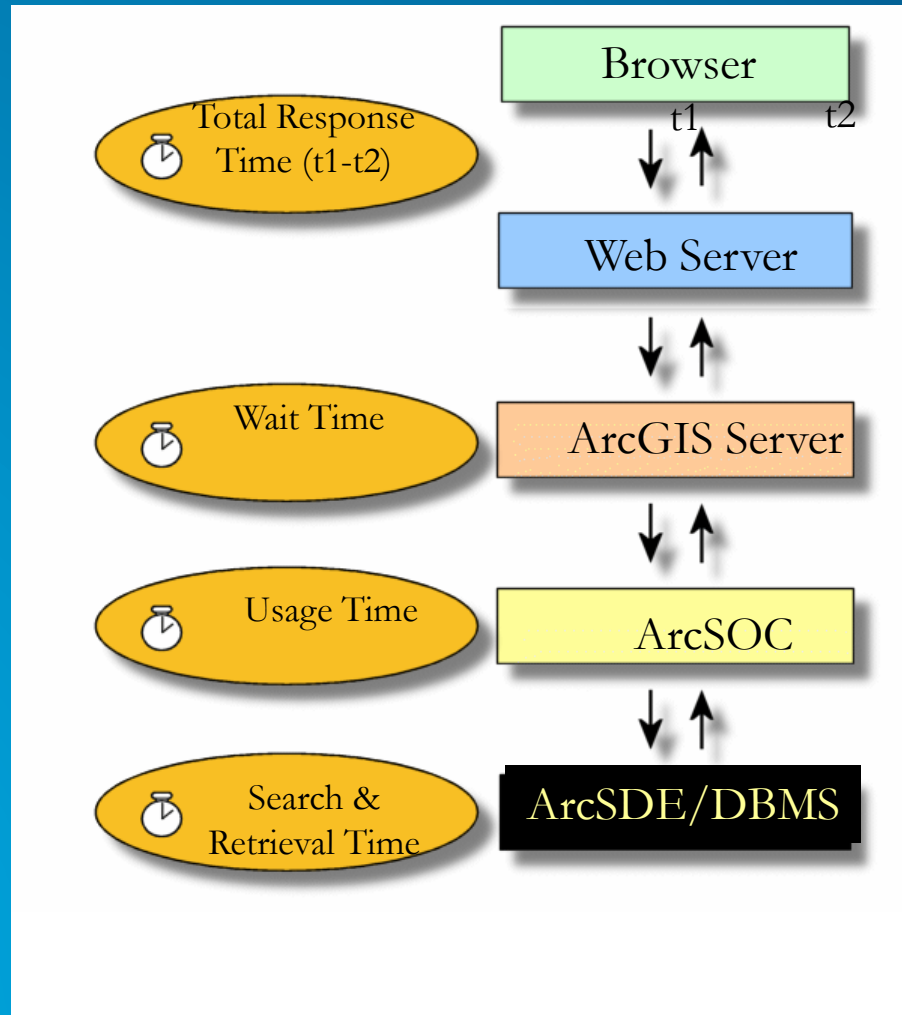
# Required skill set

Configuration, Tuning, Testing



# Tuning methodology

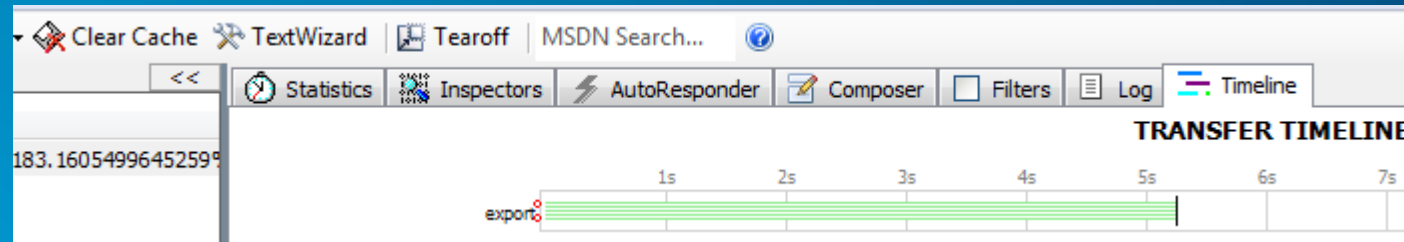
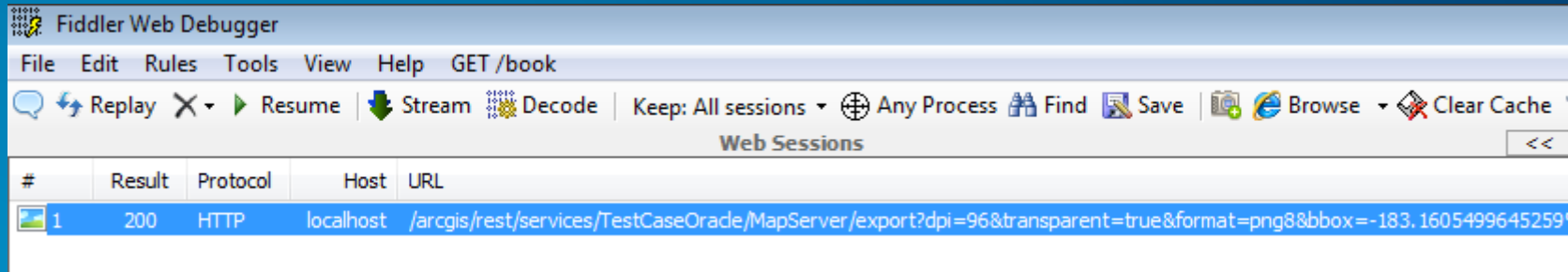
Profile each tier starting from the top





# Fiddler

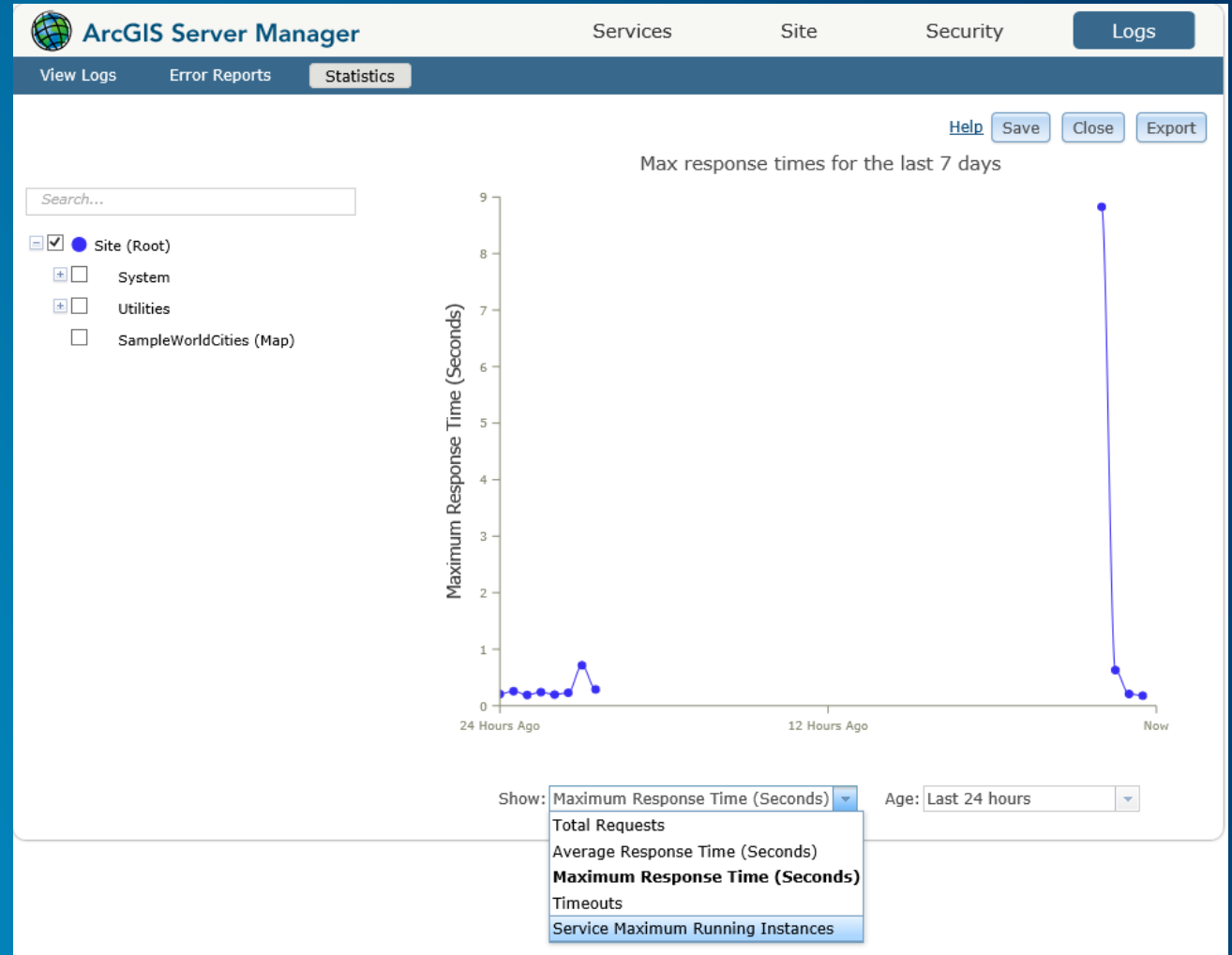
Fiddler measurement approximately 5.2 seconds



# ArcGIS Server 10.3.1 Statistics

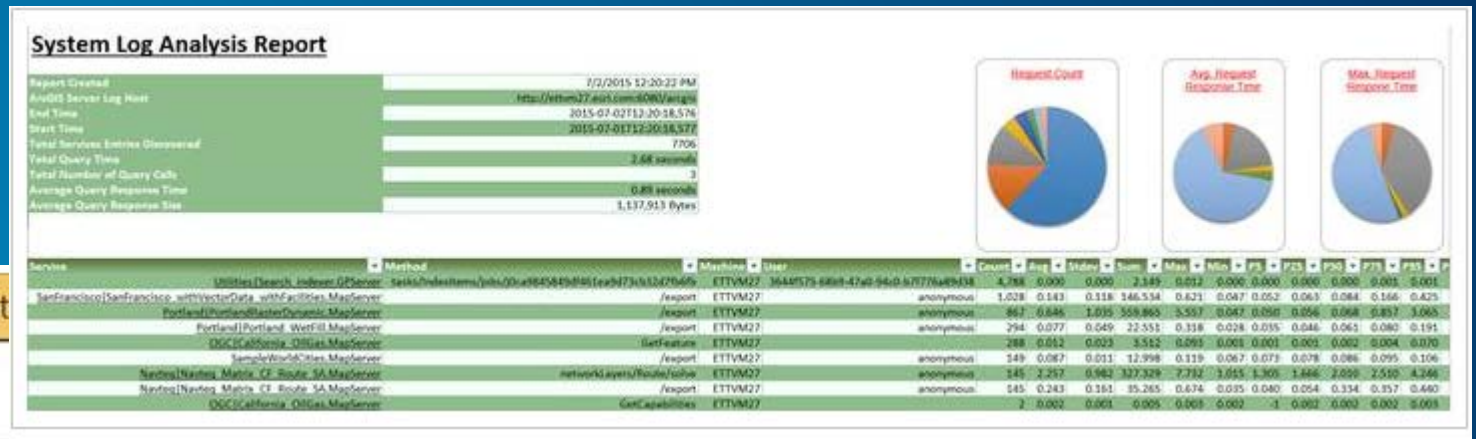
<http://server.arcgis.com/en/server/latest/administer/windows/about-server-statistics.htm>

- Total requests
- Average response time
- Maximum response time
- Timeouts
- Maximum running instances
- 30 min resolution reports



# ArcGIS Server Logs

<http://www.arcgis.com/home/item.html?id=90134fb0f1c148a48c65319287dde2f7>



## System Log Parser

Server URL:

Authentication:

User Name:

Password:

End Time:

Start Time:  (ago)  (ago)

Analysis Type:

Report Type:

Log Level:

Maximum Number of Service Items to List:

Output Directory:

Auto Open Report

# System Monitor –ArcGIS Server Statistics

- <https://systemmonitoring-emcs.esri.com/#/arcgis/ESLSRV12>
- User: esridemo
- Password: esridemo

ESLSRV12 (default) Jul 19, 2015 12:50:46 PM

[Export to CSV](#)

Alerting	Name	Folder	Type	Throughput (Tr/sec)	Busy Time per Tr (sec)	Transactions	Max	Busy	Free
✓	Summary (default)	Summary	Cluster Summary	0.117	0.285	431,564	35	0	16
✓	SampleWorldCities	Root	MapServer	0.100	0.245	420,875	1	0	1
✓	test	test1	MapServer	0.017	0.040	5,641	2	0	1
✓	Portland_sql_pvtdb	Root	MapServer	0.000	0.000	4,251	8	0	8
✓	PublishingTools	System	GPServer	0.000	0.000	746	2	0	1
✓	WorldCities_secured	Root	MapServer	0.000	0.000	22	2	0	1
✓	Geometry	Utilities	GeometryServer	0.000	0.000	22	2	0	1
✓	World_Map	Root	MapServer	0.000	0.000	3	2	0	1

# Mxdperfstat

<http://www.arcgis.com/home/item.html?id=a269d03aa1c840638680e2902dadecac>

Item	At Scale	Layer Name	Refresh Time (sec)	Recommendations	Features	Vertices	Labeling	Geography Phase (sec)	Graphics Phase (sec)	Cursor Phase (sec)	DBMS CPU	DBMS LIO
1	167,935,665	SDE.GridPoint	4.75	run DBMS trace: oraCPU=4.74; run DBMS trace, check oracle execution plan: oraLIO=130936; check if index exist for query def attributes;	1,998		False	4.74	.00	4.56	4.74	130,936

DBMS LIO	DBMS PIO	Source	LayerType	Layer Spatial Reference	LayerQueryDef
130,936		esriDBMS_Oracle,asakowicz,sde:oracle\$asakowicz:1521/gis2,sde	esriGeometryPoint	GCS_WGS_1984	ID<1000

# Oracle Trace

## Compare elapsed time

```
SQL ID: 6p20xrg10fw4n Plan Hash: 569628948
SELECT U_45.st_SHAPE$, U_45.OID, U_45.st_points,U_45.st_numpts,
       U_45.st_entity,U_45.st_minx,U_45.st_miny,U_45.st_maxx,U_45.st_maxy,
       U_45.st_minz,U_45.st_maxz,U_45.st_minm,U_45.st_maxm,U_45.st_area$,
       U_45.st_len$,U_45.st_rowid
FROM
  (SELECT b.OID,b.GX,b.GY,b.ID,1 st_SHAPE$, b.SHAPE.points as st_points,
   b.SHAPE.numpts as st_numpts,b.SHAPE.entity as st_entity,b.SHAPE.minx as
   st_minx,b.SHAPE.miny as st_miny,b.SHAPE.maxx as st_maxx,b.SHAPE.maxy as
   st_maxy,b.SHAPE.minz as st_minz,b.SHAPE.maxz as st_maxz,b.SHAPE.minm as
   st_minm,b.SHAPE.maxm as st_maxm,b.SHAPE.area as st_area$,b.SHAPE.len as
   st_len$,b.rowid as st_rowid FROM SDE.GridPoint b WHERE
   SDE.ST_EnvIntersects(b.SHAPE,:1,:2,:3,:4) = 1 AND b.OID NOT IN (SELECT /*+
   HASH_AJ */ SDE_DELETES_ROW_ID FROM SDE.D45 WHERE DELETED_AT IN (SELECT
   l.lineage_id FROM SDE.state_lineages l WHERE l.lineage_name =
   :lineage_name1 AND l.lineage_id <= :state_id1) AND SDE.STATE_ID = 0) UNION
   ALL SELECT a.OID,a.GX,a.GY,a.ID,2 st_SHAPE$, a.SHAPE.points as st_points,
   a.SHAPE.numpts as st_numpts,a.SHAPE.entity as st_entity,a.SHAPE.minx as
   st_minx,a.SHAPE.miny as st_miny,a.SHAPE.maxx as st_maxx,a.SHAPE.maxy as
   st_maxy,a.SHAPE.minz as st_minz,a.SHAPE.maxz as st_maxz,a.SHAPE.minm as
   st_minm,a.SHAPE.maxm as st_maxm,a.SHAPE.area as st_area$,a.SHAPE.len as
   st_len$,a.rowid as st_rowid FROM SDE.A45 a,SDE.state_lineages SL WHERE
   SDE.ST_EnvIntersects(a.SHAPE,:5,:6,:7,:8) = 1 AND (a.OID, a.SDE.STATE_ID)
   NOT IN (SELECT /*+ HASH_AJ */ SDE_DELETES_ROW_ID, SDE.STATE_ID FROM SDE.D45
   WHERE DELETED_AT IN (SELECT l.lineage_id FROM SDE.state_lineages l WHERE
   l.lineage_name = :lineage_name2 AND l.lineage_id <= :state_id2) AND
   SDE.STATE_ID > 0) AND a.SDE.STATE_ID = SL.lineage_id AND SL.lineage_name =
   :lineage_name3 AND SL.lineage_id <= :state_id3) U_45 WHERE (ID<1000)
```

call	count	cpu	elapsed	disk	query	current	rows
Parse	0	0.00	0.00	0	0	0	0
Execute	1	0.03	0.02	0	0	0	0
Fetch	20	9.67	9.64	0	129581	0	1998
total	21	9.70	9.66	0	129581	0	1998

*Elapsed time slightly changed due to different test runs*

# Oracle Execution plan

```
Misses in library cache during parse: 1
Misses in library cache during execute: 1
Optimizer mode: ALL_ROWS
Parsing user id: 84
Number of plan statistics captured: 1

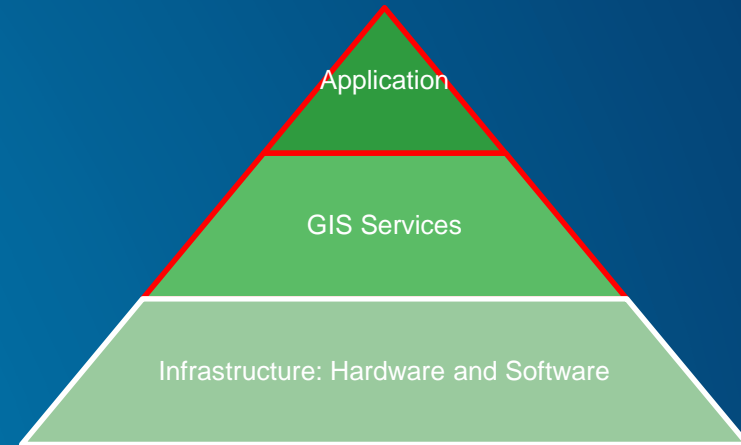
Rows (1st) Rows (avg) Rows (max) Row Source Operation
-----
1998      1998      1998  VIEW (cr=131605 pr=0 pw=0 time=512477 us cost=8 size=45906 card=21)
1998      1998      1998  UNION-ALL (cr=131605 pr=0 pw=0 time=511602 us)
1998      1998      1998  FILTER (cr=131451 pr=0 pw=0 time=508349 us)
1998      1998      1998  TABLE ACCESS BY INDEX ROWID GRIDPOINT (cr=131451 pr=0 pw=0 time=44
129600    129600    129600  DOMAIN INDEX (Sel: Default - Undefined) A29_IX1 (cr=2017 pr=0 pw=0
0         0         0     NESTED LOOPS (cr=0 pr=0 pw=0 time=4456 us cost=0 size=44 card=1)
0         0         0     INDEX RANGE SCAN D45_PK (cr=0 pr=0 pw=0 time=2101 us cost=0 size=
0         0         0     INDEX UNIQUE SCAN LINEAGES_PK (cr=0 pr=0 pw=0 time=0 us cost=0 s
0         0         0     NESTED LOOPS ANTI (cr=154 pr=0 pw=0 time=2247 us cost=5 size=2367
0         0         0     NESTED LOOPS (cr=154 pr=0 pw=0 time=2243 us cost=5 size=2367 card
0         0         0     TABLE ACCESS BY INDEX ROWID A45 (cr=154 pr=0 pw=0 time=2242 us c
0         0         0     BITMAP CONVERSION TO ROWIDS (cr=154 pr=0 pw=0 time=2236 us)
0         0         0     BITMAP AND (cr=154 pr=0 pw=0 time=2232 us)
0         0         0     BITMAP CONVERSION FROM ROWIDS (cr=147 pr=0 pw=0 time=455 us)
0         0         0     SORT ORDER BY (cr=147 pr=0 pw=0 time=454 us)
0         0         0     INDEX RANGE SCAN A45_STATEID_IX1 (cr=147 pr=0 pw=0 time=439
0         0         0     BITMAP CONVERSION FROM ROWIDS (cr=7 pr=0 pw=0 time=1768 us)
0         0         0     SORT ORDER BY (cr=7 pr=0 pw=0 time=1768 us)
0         0         0     DOMAIN INDEX (Sel: Default - Undefined) A29_IX1_A (cr=7 pr=0
0         0         0     INDEX UNIQUE SCAN LINEAGES_PK (cr=0 pr=0 pw=0 time=0 us cost=0 s
0         0         0     VIEW PUSHED PREDICATE UW_NS0_1 (cr=0 pr=0 pw=0 time=0 us cost=0
0         0         0     FILTER (cr=0 pr=0 pw=0 time=0 us)
0         0         0     NESTED LOOPS (cr=0 pr=0 pw=0 time=0 us cost=0 size=44 card=1)
0         0         0     INDEX RANGE SCAN D45_PK (cr=0 pr=0 pw=0 time=0 us cost=0 size=
0         0         0     INDEX UNIQUE SCAN LINEAGES_PK (cr=0 pr=0 pw=0 time=0 us cost=0
```

*Inefficient spatial index*

# System Test Tool features

## GIS Test Automation

- **ArcGIS Services**
  - Mapping
  - Feature Service
  - OGC
  - Geocoding
  - Image Service
  - Network Analyst
  - Geoprocessing
  - Tile Cache
- **Application Testing**
- **Discipline relevant report**





# Test tools feature comparison

Tool	Cost	Learning Curve	OS Metrics	GIS Data Generation	GIS Test Automation
Load Runner	High	High	Windows/Linux	No	No
Visual Studio	Medium	High	Windows	No	No
JMeter	Free	High	Requires additional plugin	No	No
System Test	Free	Low	Windows/Linux	Yes	Yes

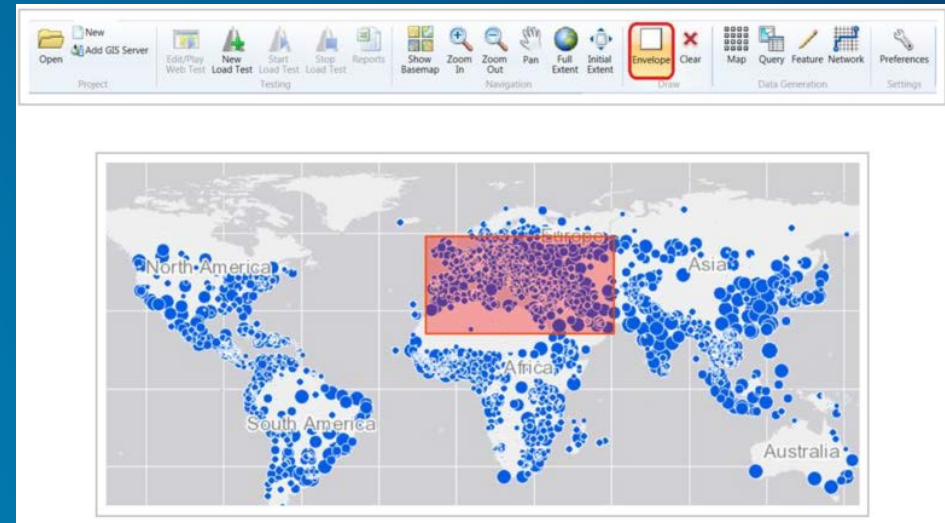
# Performance testing

## Value

- **Identify bottlenecks**
- **Determine system capacity**
- **Demonstrate performance SLA**

# Demo

## System Test



# System Monitoring

# Monitoring Enterprise GIS

## Challenges

- **Multiple administrators**
- **Multiple disparate monitoring/diagnostic tools**
- **Data collected in a reactive fashion: on demand and for limited time**
- **Correlation of data with different timestamp is difficult**
- **ArcGIS administrators do not have access to all tools, data and reports**
- **Challenging to quickly identify the root cause and take appropriate measures**

## Standards for effective GIS monitoring

- Many excellent monitoring tools on the market
- Few provide GIS dashboards
- System Monitor can be used as reference implementation

# Enterprise GIS effective monitoring

“**PIECE**” of mind with System Monitor

- **P**roactive
- **I**ntegrated
  - Dashboards across all tiers
- **E**nd-to-End
  - All tier monitoring
- **C**ontinuous
  - %Coverage provided
- **E**xtendable
  - Custom queries

Key Performance Indicators:

Hosts Process ArcGIS DB Http RDP

	% Coverage	% Uptime	% Alert
1	100.00	100.00	100.00
2	100.00	100.00	0.00
3	100.00	100.00	0.00
4	100.00	100.00	0.00
5	100.00	100.00	0.00
6	100.00	98.75	0.00

- Network
- Hardware
- Web Server
- ArcGIS Server
- Geodatabase
- RDBMS

# Monitoring

## Value

- Proactive validation:



Configuration



Resource Utilization



Usage Trends



Performance SLA



Uptime SLA

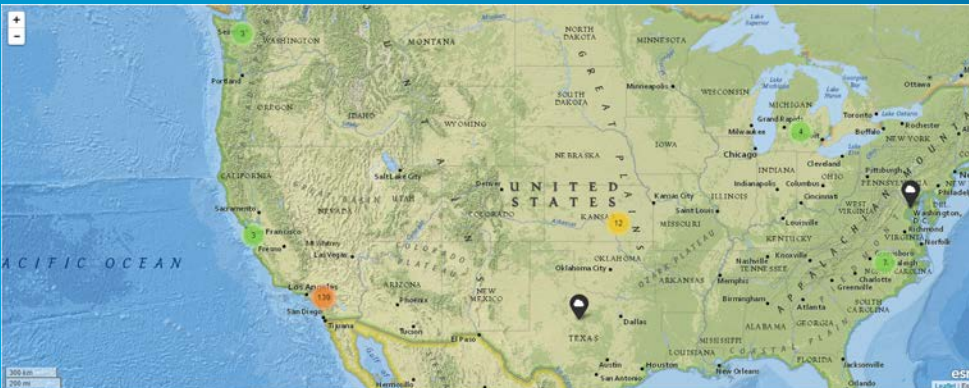


# Demo

<https://systemmonitoring-emcs.esri.com/Portal>


user: esridemo


password: esridemo





System Monitor Information Portal


Search for what you're interested in


  
**System Monitor Report Server**  
System Monitor user interface for viewing, visualizing, and analyzing data  
[Open](#)

  
**Application Builder**  
Create a customer System Monitor application  
[Open](#)

  
**Activity Dashboard**  
System Monitor Activity Dashboard sample application  
[Open](#) [Download](#)

  
**Activity Map**  
System Monitor demo portal activity map.  
[Open](#) [Download](#)

























  
**System Designer**  
System Designer Capacity Planning tool  
[Open](#) [Download](#)

  
**System Test Tool (Web)**  
System Test Tool for the Web  
[Open](#) [Download](#)

System Monitor | Reports | System | Process | ArcGIS | Portal | DB | Http | RDP | Amazon | EXT | Collector

## System Monitor Summary

Monitoring Summary

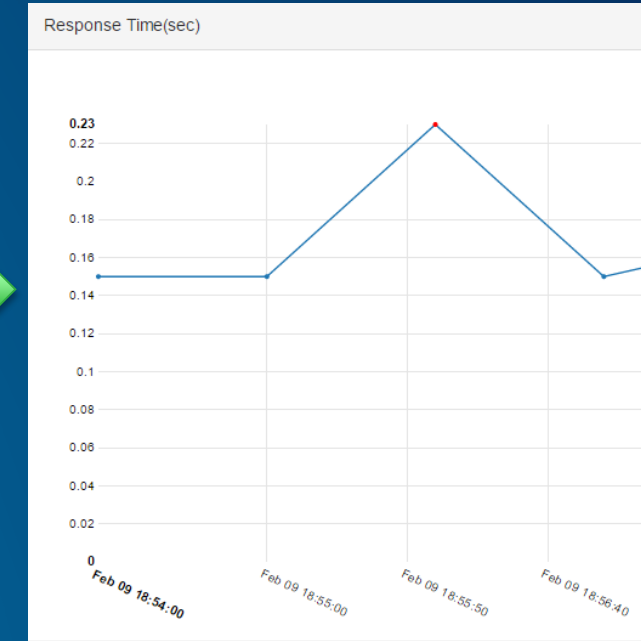
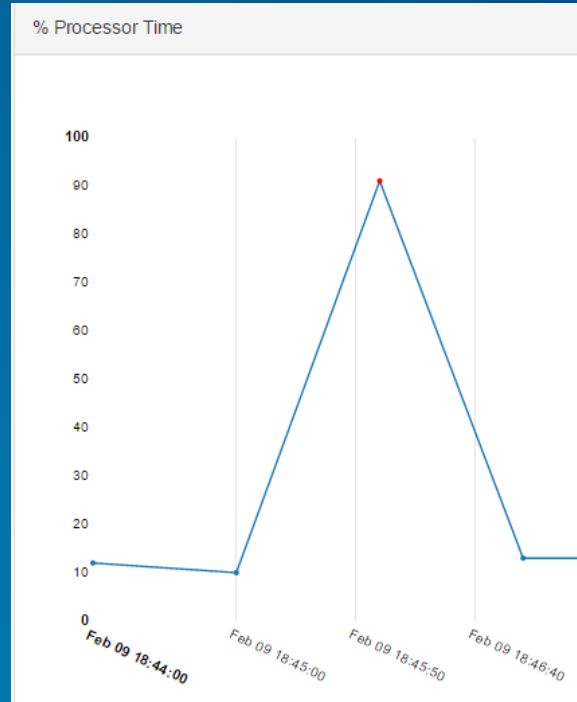
Alerting	Collecting	Section	Type	Section Count	Not Collecting	%
		System		16	0	
		Process		9	0	
		ArcGIS		2	0	
		Portal		1	0	
		DB		1	0	
		Http		8	0	
		RDP		15	0	
		Amazon		2	0	

# Use Cases

Applied use of System Monitor and Test tools

# Demo

## Simulate CPU spike (e.g. Antivirus scan)



Mon 2/9/2015 7:00 PM  
asakowicz@esri.com  
SM Demo: Alerts Summary Report

To: Andrew Sakowicz  
If there are problems with how this message is displayed, click here to view it in a web browser.

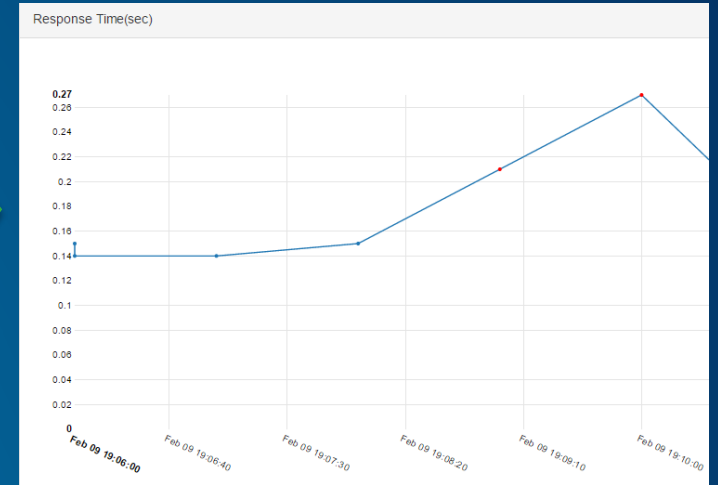
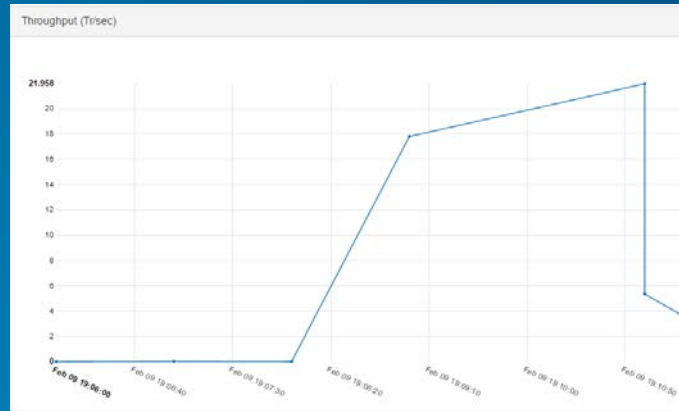
Message | alerts.html (1 KB)


Account: SM Demo System Summary

Date	System	Category	Name	Instance	Value	Type	Validation Value	IsAlerting
Mon Feb 09 2015 18:59:57 GMT-0800 (Pacific Standard Time)	ASAKOWICZ	Processor	% Processor Time	_Total	93	>	50	true

# Demo


## Simulate ArcGIS user load




 Mon 2/9/2015 7:10 PM  
 asakowicz@esri.com  
 SM Demo: Alerts Summary Report

To: Andrew Sakowicz

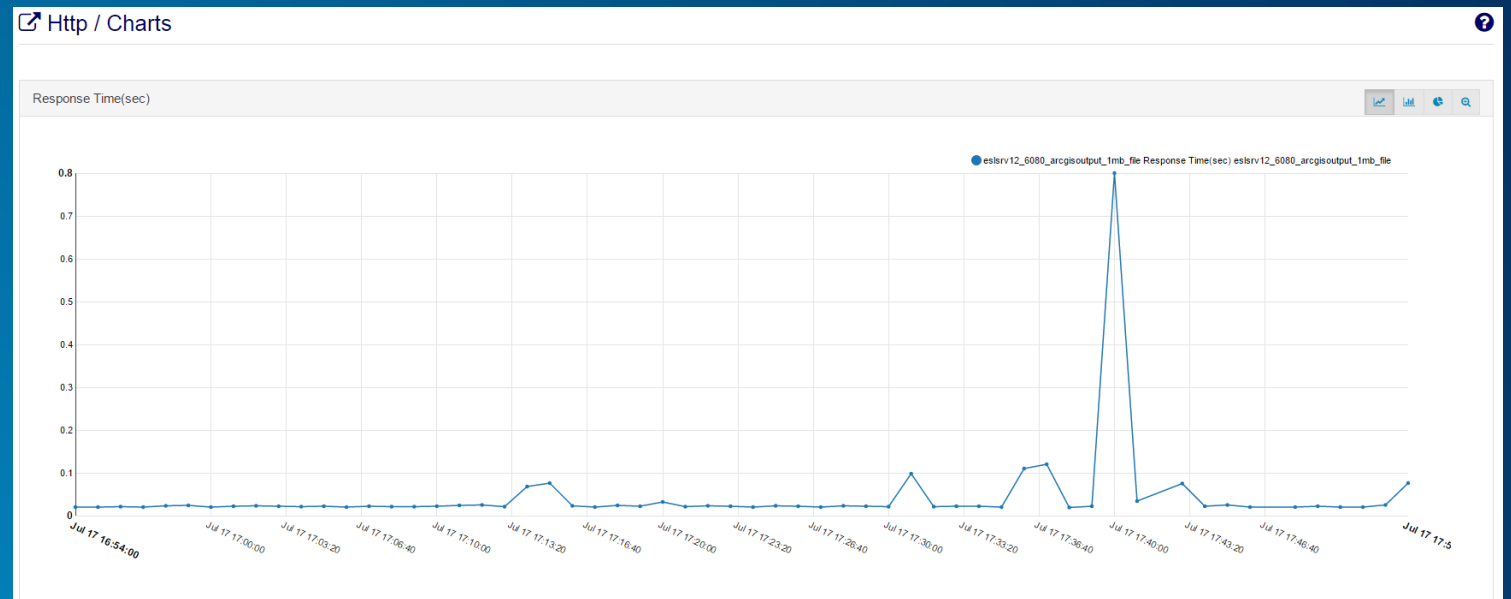
[If there are problems with how this message is displayed, click here to view it in a web browser.](#)

Message  alerts.html (1 KB)

Account: SM Demo Http Summary

Date	System	Category	Name	Instance	Value	Type	Validation Value	IsAlerting
Mon Feb 09 2015 19:09:58 GMT-0800 (Pacific Standard Time)	asakowicz_SampleWorldCities	Url	Response Time(sec)	asakowicz_SampleWorldCities	0.21	≥	0.17	true

# Demo



Intermittent slow performance:  
Networks latency (SM extensions)

[https://systemmonitoring-emcs.esri.com/#/url/eslsrv12\\_6080\\_arcgisoutput\\_1mb\\_file](https://systemmonitoring-emcs.esri.com/#/url/eslsrv12_6080_arcgisoutput_1mb_file)

# Demo

## ArcGIS Server services stopped

**Account: SM Demo** System Monitor - Alerts Summary

*The System Monitor administrator has added you to the notification list and sending you this report.*

**Failed Collections:**

Note: In general, these errors mean that security has changed and the System Monitor Collector can no longer collect information.

Please review the System Monitor Collector configuration for the following failed items:

Message	Host	Category	Counter Name	Collector	Value	Rule	Validation Value
*	lmb_file	url	*	ASAKOWICZ	226.77	>	60
*	asakowicz_SampleWorldCities	url	*	ASAKOWICZ	225.92	>	60
*	ASAKOWICZ	arcgis	*	ASAKOWICZ	224.70	>	60

# Demo

## ArcGIS Server service usage

[https://systemmonitoring-emcs.esri.com/apps/dashboard\\_sample/#/ArcGIS](https://systemmonitoring-emcs.esri.com/apps/dashboard_sample/#/ArcGIS)

📊 ArcGIS Throughput - Use this report to evaluate service usage.

Alerting	Collecting	Last Update	Name ↕	Instance ↕	Max ↕	Sum ↕	Coverage ↕	Samples ↕	Details
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Root/FLJAC	14.00	124.00	100.00	12	📄
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Root/NewYork	20.00	185.00	100.00	12	📄
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Root/SampleWorldCities	39.00	369.00	100.00	12	📄
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	test1/test	5.00	60.00	100.00	12	📄
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Summary	78.00	738.00	100.00	12	📄

# Demo

## Unbalanced resources: ArcGIS Server clusters

[https://systemmonitoring-emcs.esri.com/apps/dashboard\\_sample/#/ArcGISConfig](https://systemmonitoring-emcs.esri.com/apps/dashboard_sample/#/ArcGISConfig)

☑ Status   System ▾   ⚙ Process ▾   ArcGIS ▾   Database ▾   HTTP   Terminal Services   Amazon

Fri Jul 17 2015 16:47:16 GMT-0700 (Pacific Daylight Time)   Fri Jul 17 2015 17:47:16 GMT-0700 (Pacific Daylight Time)   GO   <<   >>   Auto

### Configuration Summary ESLSRV12

Site ↕	Cluster ↕	Machines ↕	Site Total ↕	Configured Services ↕	% of Site ↕	Services Started ↕	Services Stopped ↕	Service Error State ↕	Hosts	Map ↕	Image ↕	GP ↕	Search ↕	Geometry ↕	C
ESLSRV12	default	1	18	15	83.33	13	2	0	ESLSRV12	5	0	8	1	1	
ESLSRV12	testCluster	1	18	3	16.67	3	0	0	FPIZZI8	3	0	0	0	0	



# Demo

## ArcGIS Server slow services

[https://systemmonitoring-emcs.esri.com/apps/dashboard\\_sample/#/ArcGIS](https://systemmonitoring-emcs.esri.com/apps/dashboard_sample/#/ArcGIS)


📊 ArcGIS Throughput - Use this report to evaluate service usage.






Alerting	Collecting	Last Update	Name ↕	Instance ↕	Max ↕	Sum ↕	Coverage ↕	Samples ↕	Details
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Root/FLJAC	14.00	124.00	100.00	12	📄
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Root/NewYork	20.00	185.00	100.00	12	📄
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Root/SampleWorldCities	39.00	369.00	100.00	12	📄
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	test1/test	5.00	60.00	100.00	12	📄
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Summary	78.00	738.00	100.00	12	📄

# Demo

## ArcGIS Server service usage

[https://systemmonitoring-emcs.esri.com/apps/dashboard\\_sample/#/ArcGISstuning](https://systemmonitoring-emcs.esri.com/apps/dashboard_sample/#/ArcGISstuning)

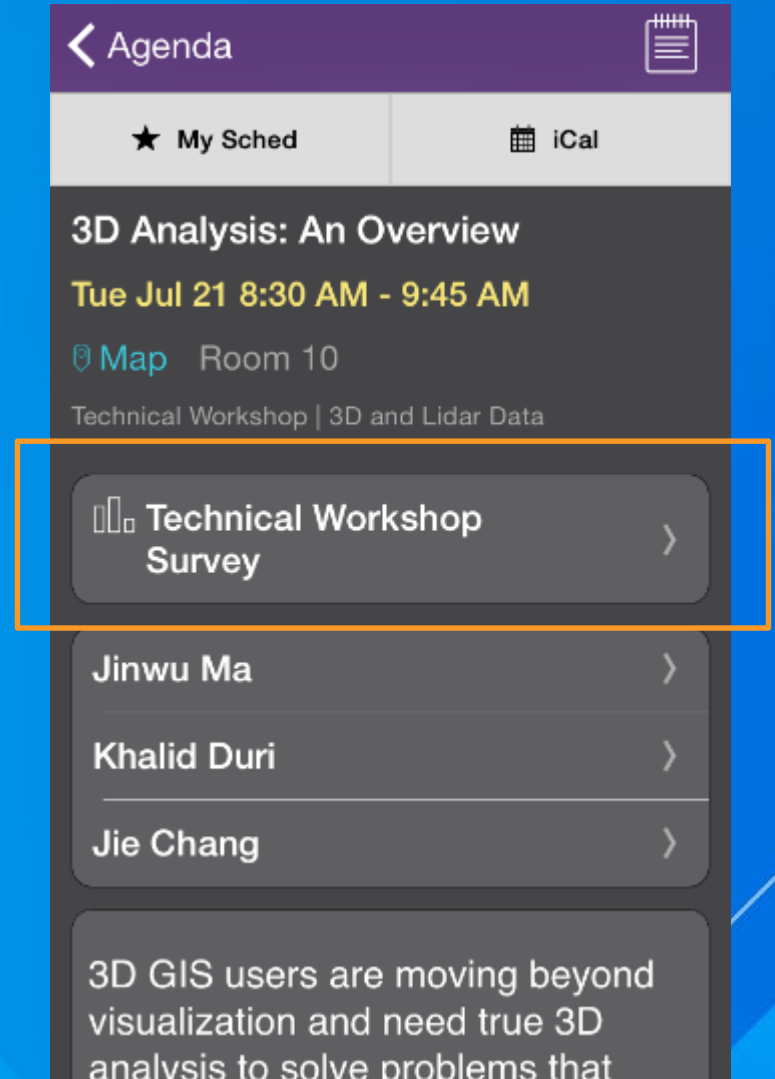
 ArcGIS Throughput - Use this report to evaluate service usage.

Alerting	Collecting	Last Update	Name ↕	Instance ↕	Max ↕	Sum ↕	Coverage ↕	Samples ↕	Details
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Root/FLJAC	14.00	124.00	100.00	12	
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Root/NewYork	20.00	185.00	100.00	12	
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Root/SampleWorldCities	39.00	369.00	100.00	12	
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	test1/test	5.00	60.00	100.00	12	
✓	✓	7/19/2015 2:11:43 PM	ESLSRV12	Summary	78.00	738.00	100.00	12	



# Thank you...

- Please fill out the session survey in your mobile app
- Select [enter session title here] in the Mobile App
  - Use the Search Feature to quickly find this title
- Click “Technical Workshop Survey”
- Answer a few short questions and enter any comments





Understanding our world.