

Design and Implementation of the ArcSOC Optimizer

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The Issue

- What
 - ArcGIS Server instability & frequent outages
- Why
 - Rapid growth of WebGIS
 - Time required to increase server capacity
 - Manual adjustment of ArcSOC processes
- The bottom line
 - Reactive & unsustainable service management paradigm
 - Unhappy WebGIS users

	W	X	Y	Z	AA	AB	AC	AE	AF	AG	AH	AI	AJ
	p75(free)	p95(free)	p99(free)	Max(free)	Uptime(%)	Samples	Interval(sec)	Comments					
2	25	25	25	25	101.61	8767	300						
4	1	6	11	24	101.6	8757	300						
5	7	11	15	23	101.6	8757	300						
6	7	12	15	21	101.6	8757	300						
7	8	12	16	21	101.6	8757	300						
8	1	7	11	18	101.6	8757	300						
9	4	13	13	17	101.6	8757	300						
10	14	14	14	16	101.6	8767	300	Warning: Max instances too low (Busy or Free equal Max). If available memory, increase min and max instances.					
11	8	8	8	8	101.6	5402	300	Warning: Max instances too low (Busy or Free equal Max). If available memory, increase min and max instances.					
12	8	8	8	8	101.6	5402	300	Warning: Max instances too low (Busy or Free equal Max). If available memory, increase min and max instances.					
13	0	1	11	16	101.6	8757	300						
14	8	8	8	8	15	101.6	5402	300	Warning: Max instances too low (Busy or Free equal Max). If available memory, increase min and max instances.				
15	6	6	7	15	101.62	5402	300						
16	0	15	15	15	101.6	8757	300						
17	8	9	9	15	101.6	8757	300						
18	12	12	12	14	101.61	8767	300						
19	12	12	12	14	101.61	8767	300	Warning: Max instances too low (Busy or Free equal Max). If available memory, increase min and max instances.					
20	6	6	6	14	101.6	8757	300						
21	6	6	9	14	101.6	8757	300						
22	1	1	6	14	101.6	8757	300						
23	0	0	9	14	101.6	8757	300						
24	9	9	9	13	101.6	8766	300	Warning: Max instances too low (Busy or Free equal Max). If available memory, increase min and max instances.					
25	7	7	7	13	101.56	8763	300						
26	5	10	10	12	101.6	8766	300						
27	10	12	12	12	101.6	8766	300	Warning: Max instances too low (Busy or Free equal Max). If available memory, increase min and max instances.					
28	7	7	10	12	101.6	8766	300						
29	12	12	12	12	101.6	5402	300						
30	12	12	12	12	101.6	5402	300						
31	12	12	12	12	101.6	5402	300						
32	12	12	12	12	101.6	8763	300						
33	0	2	6	12	101.6	8757	300						
34	0	0	0	13	101.6	8767	300						



Designing the Solution


- Worked collaboratively with Esri
- Requirements
 - Systematic, efficient, automated
 - Evaluate multiple variables
 - Scalable across servers
- ArcSOC Optimizer introduction
 - Alpha delivered within 1 month
 - Beta delivered and deployed across all servers in 2 months


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1 {
2   "Time": {
3     "FromDate": "Now",
4     "timeZone": "US/Central",
5     "pastDays": 1,
6     "workDays": [ "Monday", "Tuesday", "Wednesday",
7     "workHours": [ 0, 1, 2, 3, 4, 5, 6, 7, 8,
8   ],
9   "SLA": {
10    "ArcSOCSLA": 250,
11    "ProcessesComment": "http://support.esri.com/faq/arcgis/arcSOC/arcSOCOptimizer",
12    "MemFreeSLA(GB)": 4,
13    "arcSOCGB": 0.25
14  },
15  "LowUsageGroup": {
16    "usageSecLT": 10,
17    "minInstancesPerNode": 0,
18    "maxInstancesPerNode": 2,
19    "execute": "False"
20  },
21  "StandardUsageGroup": {
22    "maxInstancesPerNodeIncrement": 2,
23    "minStat": "p95",
24    "maxStat": "max",
25    "execute": "True"
26  },
27  "Exclude": {
28    "excludeAGSServices": ["SampleWorldCities", "ArcGISServer_Test", "Basins"],
29    "excludeAGSFolders": [ "Utilities", "System", "Hosted" ]
30  },
31  "Email": {
32    "email": "False",
33    "server": "mail.xx.com",
34    "port": 25,
35    "user": "",
36    "password": "",
37    "sender": "sender@xx.com",
```


Name: ArcSOC Optimizer 30Day Eslvr12


Type: ArcSOC Optimizer


Note: Warning: ArcSOC Optimizer will restart ArcGIS Server services in edit mode. Esri Professional Services support is recommended.


Program:  C:\System Monitor Desktop\resources\app\bin\ArcSOC Optimizer\ArcSOCOptimizer.exe

Config:  C:\System Monitor Desktop\resources\app\bin\ArcSOC Optimizer\config\30days.json

SiteUrl:  https://eslvr12.esri.com:6443/arcgis

TokenUrl:  https://eslvr12.esri.com:6443/arcgis/tokens/generateToken

Mode:  list


Cluster:  default

Credentials: AGS12

System Monitor Credentials:

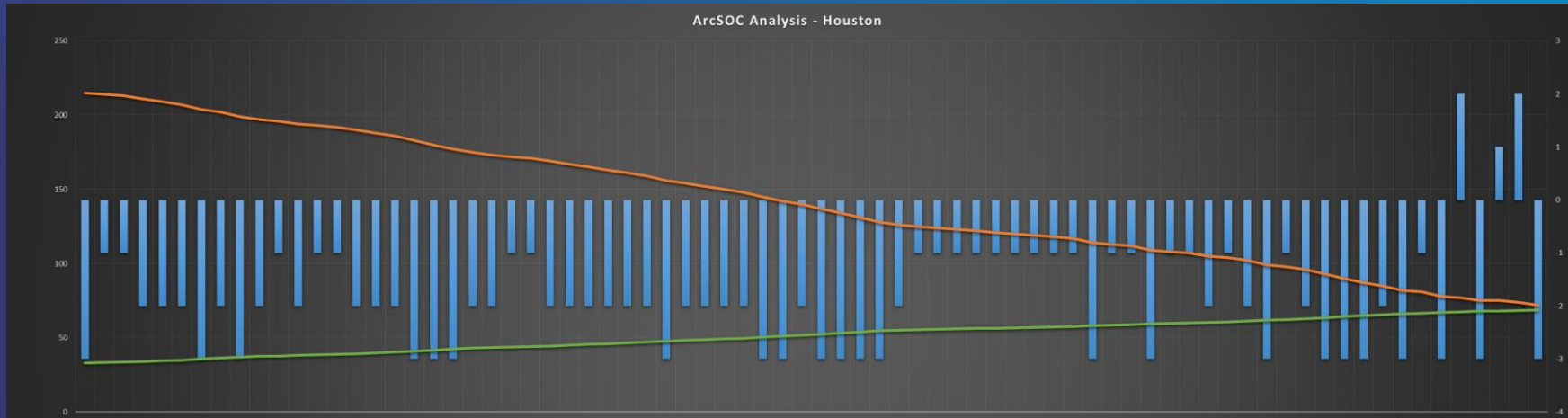
SM

Day: Hour:

Day	Hour	Delete
All	3:00 A.M.	

Results & Benefits

- Initial run
 - Significant reduction of total number of SOCs
 - Increase in free memory
 - Identification of over utilized services
- Analysis time frames (steady state)
 - Long term to identify unnecessary SOCs
 - Short term to identify under allocated services (need more SOCs)



Orange – total SOCs, Green – free memory
Blue – change in SOCs for individual services

Results & Benefits

- The results speak for themselves
 - Vastly improved stability of ArcGIS Server
 - Improved response times of services
 - Staff time freed for other activities
 - Happy WebGIS users!!!



Questions

