



Demo Case White Paper

Agile Situational Visibility for Location-based Entities

Security Management, Performance Visibility, Risk Management for Critical Infrastructures, Facilities, Data Centers, Buildings, Borders, IoT Sensors, Planes, Trucks etc.

Business Context

There are many categories of **Entities** that are **location-based** or have location attributes in various businesses, such as:

Facilities	<ul style="list-style-type: none"> ○ Data Centers ○ Buildings ○ Hospitals ○ Schools / Campus ○ Mall, Stores and Restaurants
Critical Infrastructure	<ul style="list-style-type: none"> ○ Transportation (Airport, Ports, Borders etc.) ○ Cities ○ Power Plants, Utility and Energy Grid ○ Financial/Telecom/Military Centers etc.
Sensors	<ul style="list-style-type: none"> ○ SCADA ○ IoT Sensors
Moving Objects and Paths	<ul style="list-style-type: none"> ○ Trucks and Cars on the road ○ Ships, Airplanes, Drones, Tanks ○ Incidents, Storms and Weather ○ Military Troops and Soldiers; Travelers



Those Entities are natural candidates to be displayed in a **GEO Map Graphical User Interface (GUI)** for business users to view, navigate, analyze and act intuitively. There are strong demands for such applications from a wide spectrum of industries.

As each industry and each customer's requirements may be different, there are thousands of such custom-built GEO Map software applications in the market; mostly were custom-built for a pre-defined fixed set of requirements, and generally are very costly to develop. It is even more costly and time consuming to adapt these custom-built applications to new business requirements because they are very rigid and inflexible by design.

The business question here is:

Is it possible to have a significantly more generic and agile way to assemble GEO-Centric Operating Pictures for such location-related Entities on-demand without any programming?

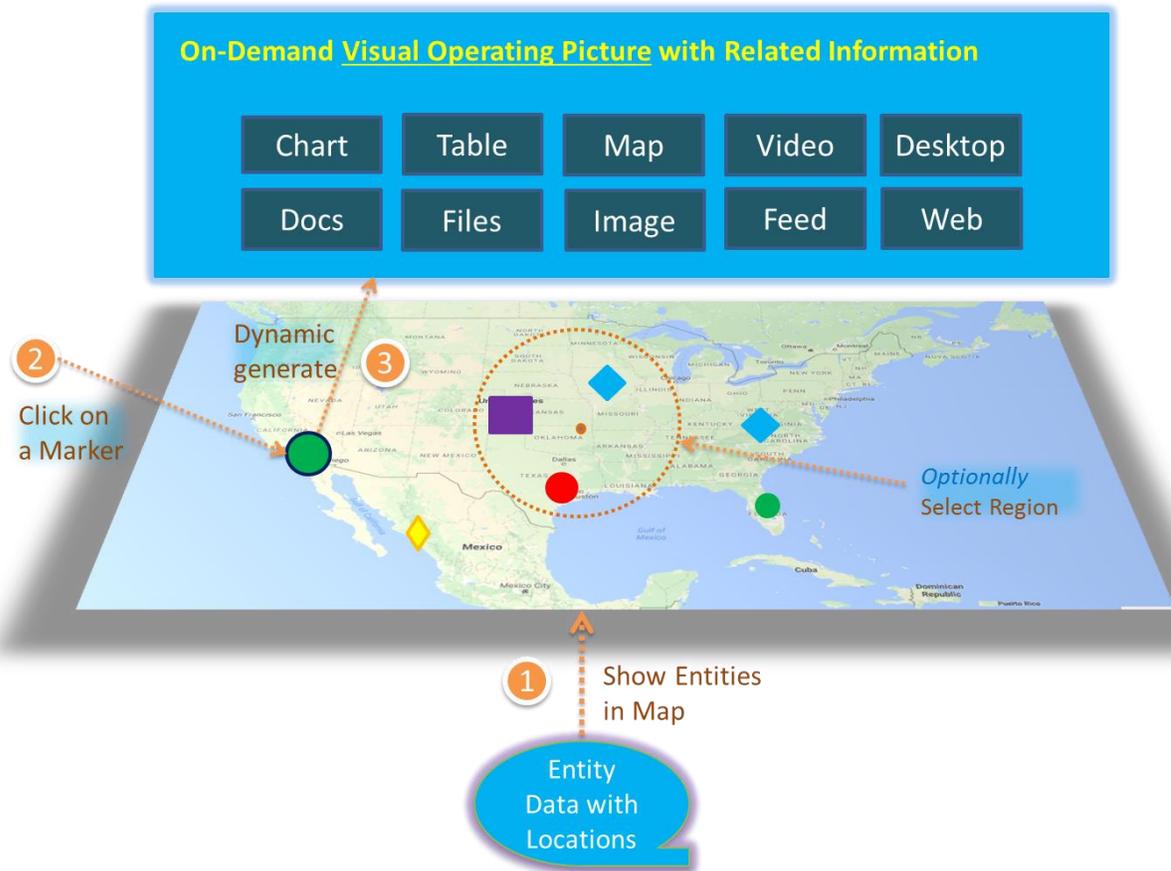
The desired solution should have the following characteristics and requirements:

1. Presenting a Map interface with the location-oriented Entities displayed in the Map
2. The business user should be able to link the Map easily with their own Data, and configure the graphical user experience easily without any programming
3. The most important requirement here is it should allow the user to interact with Markers on the Map representing Entities, and to view **dynamically generated Operating Pictures** containing *any type* of **additional relevant and detailed** visualization or information *on-demand*.
 - a) What's inside those operating pictures should be **data-driven, configuration-based or analytics-based, and dynamically generated** *without hard coding* the types and sources of specific information or data visualizations in the software.
 - b) A business user should be able to configure this to adapt to its own business environment and data sources **without having to ask a programmer to re-code the software again and again** for specific requirements of its business.
 - c) Ideally, the additional detailed or relevant information should be rendered along with the GEO Map on **a Single Pane of Glass**, instead of jumping to another screen. This can preserve best user context and user experience.

If the new solution can meet the above requirements, it becomes very generic and can be applied to any industry, business or mission environment rapidly and flexibly without additional software programming and coding, which can lead to significantly improved efficiency, agility, cost savings, visibility and decision making.

The various types of data, visualization or application a business user may be interested in related to those Location-oriented Entities may include the following:

- Descriptive Information on the entity, asset, people or location
- Local Maps, Building Structure and Floor Plans, etc.
- Transactional, Time-Series and Performance Data
- Statistics, Analytical Charts, Dashboard and Reporting - live and historical
- Documents and Reports related to this entity such as Use Manuals, Guides etc.
- Physical live camera or video feeds for physical security and monitoring
- Network and communication data
- Desktop, Web Applications or Sites that are related and functional/interactive
- Live data or video feeds
- Pictures, Images and Files for the Entity and location
- Related Web Site and Web applications
- Desktop and related applications



The desired solution should be able to render any combination of the above information that is associated with location-based Entities, and construct an Operating Picture related to the Entities on-demand when the user interacts with Markers and Areas on the Map.

Current Software Available on the Market

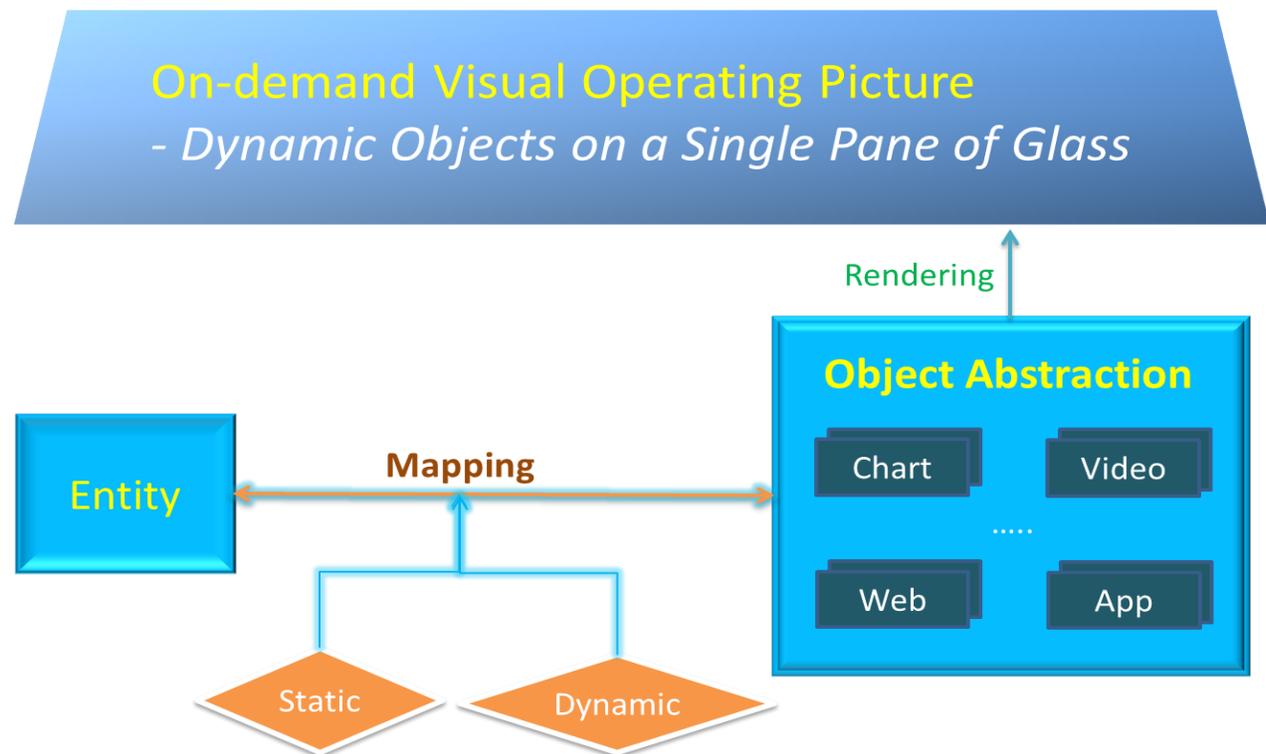
There are many software applications on the market that can support GEO Map representation.

Their main drawbacks are:

- (1) They are either typically custom-built applications for a set of pre-defined requirements, making them inherently very rigid and inflexible, and not agile enough to support rapidly changing business requirements;
- (2) Or they are basically GEO Map software Toolkits for developers to program on and to develop new GEO-related applications, which requires significant effort and deep technical skill.
- (3) Also, those applications typically can only support a very limited set of pre-determined information sources and types. If the business needs to support additional information sources or data types, additional visualizations or additional presentations that were not prescribed before, they usually must invest significant more time and money for repetitive software rewrites.

SitScape's Solution

By applying the User-Defined-Operating-Picture (UDOP) framework and the built-in agile data visualization and data processing automation capabilities of our software, SitScape makes such Agile Situational Visibility a reality.

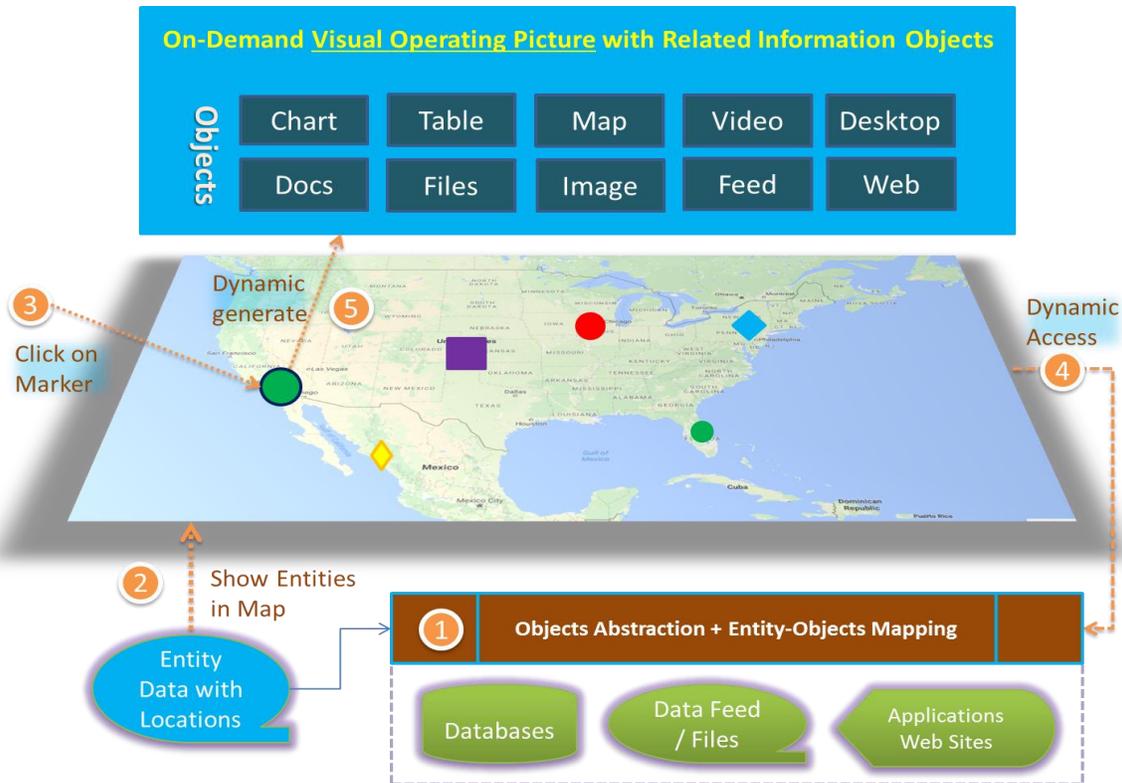


The core concept of the solution is that each disparate information set and application can be represented as an abstracted **Object**, no matter what type it is, such as a Chart, a Data Grid representing a Data Table in a database, a View to a database, a Document, a File, a Map, an Image, a Video, a Live Camera feed, a Rich Text, a live Feed, a remote Desktop, a Web site, etc..

If we can visualize each **Object** in a composite graphical user interface with interactivity, and make Objects communicate with each other, we can compose them in any way a business user desires as a dynamic, interactive, responsive User-Defined-Operating-Picture (UDOP).

Applying this core concept to the requirements above for location-related Entities, we just need to create a data-driven **Mapping** between an Entity and a list of Objects of any number and any type, which captures what a business user wants to see per the business requirements of that situation. Then when a user clicks on a Marker on the Map representing an Entity, the software can apply the data values associated with the Entity, such as Location and various other

Attributes, and dynamically render the associated Objects, thereby generating an Operating Picture on-demand. This step can be fully automated by leveraging SitScape’s software.



There are several approaches to generate the Entity-Objects mapping, as follows:

1. The first way is for the business user to pre-define the Entity-Object Mapping explicitly for his/her more **static** use cases.
 - In this case, the actual Objects associated with an Entity are statically defined, yet the rendering, functionalities and content for each Object is still dynamic.
2. The second way is to incorporate additional data analytical or business logic to generate the Entity-Object Mapping **dynamically** based on data values, processing logic or analytical algorithms, be it mathematical, statistical or machine-learning based.
 - In this case, the actual number of Objects, what those Objects actually are, and the functionalities, content and rendering of each Object can all be dynamic.
3. In the real world, the two approaches may be combined for the best trade-off of easy-of-use and power.
 - SitScape’s *Straight-Through-Processing (STP)* software module can be used here.
 - STP can support a balance between automation and autonomous operations.

A Sample Application in the Real-World

Let's apply this capability to a real-world **Facility Visibility** demo case:

A large corporation has many facilities in various locations across the United States. The management likes to have near-real-time operational visibility of each facility with a simple-to-use Map-based graphical interface.

They want to see the status of each facility on a map at-a-glance, and use **red color** to show facilities with problems.

When a user clicks on the Marker of, say a facility with **red color**, he wants to see additional details of that site, such as:

- The supervisor contact information
- The hourly throughput of that facility during the day in a visual chart
- The hourly staffing positions during the day in a chart
- The hourly status of workstations and the network at the site in a heat-map
- The floor-plan of the facility in a PDF format
- Other related dynamic information, such as a live camera video feeds, etc.

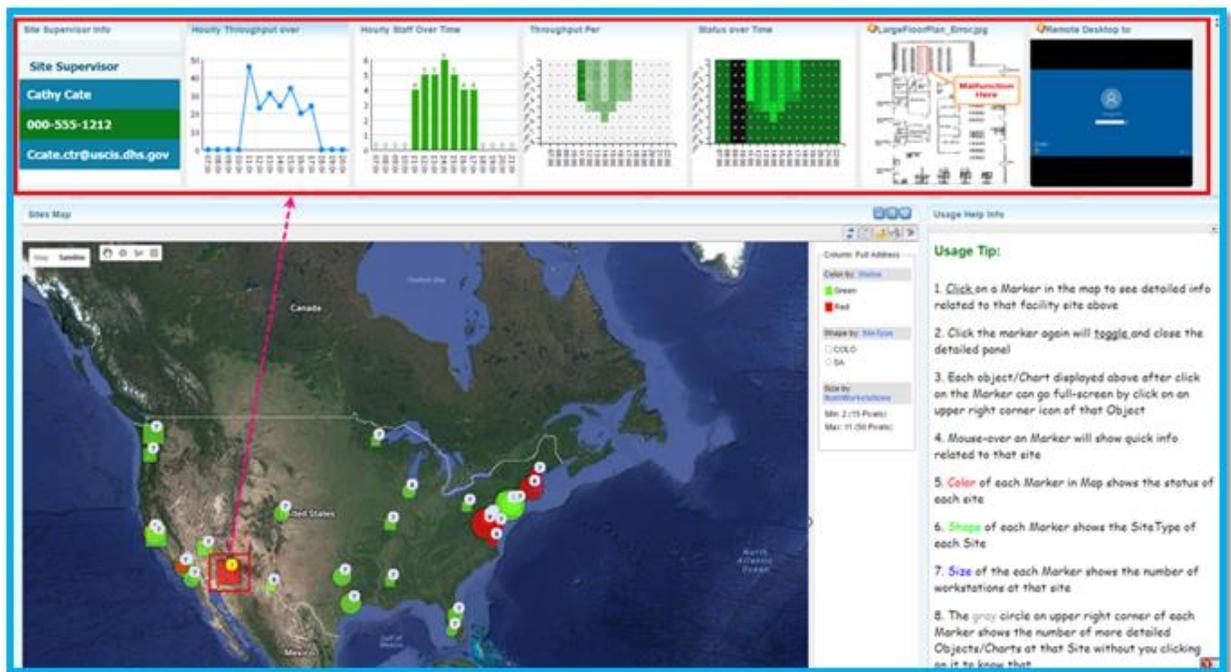
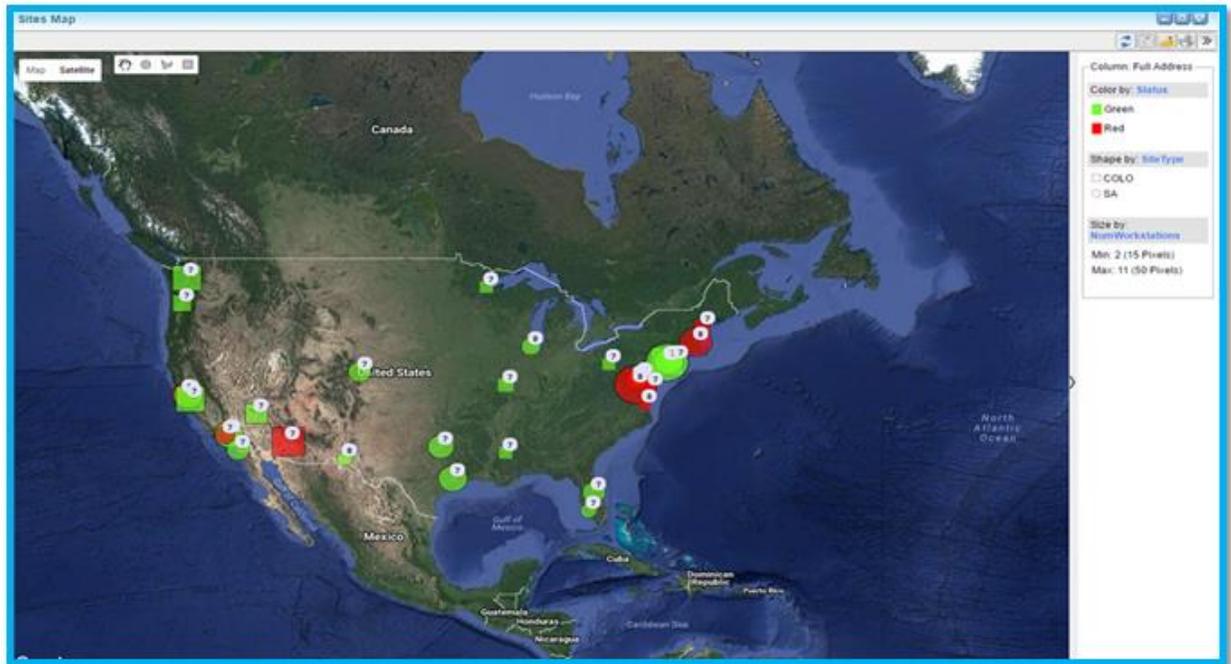
Also, over time and in different situations, what the management wants to see, and what they like to correlate from facility data, may change given then-current needs, so the list of information topics listed above is not fixed, and will need to be changed easily and flexibly.

Access to the Live Web Application Online

Using SitScape, it is very easy to meet such business requirements. A fully functional live application to support those functionalities can be configured in just a few hours. It can also support new requirements of the business very rapidly without any additional software development. Please watch a recorded video of such application:

- <http://demo.sitscape.com/p/39db1096>

Sample Screenshots



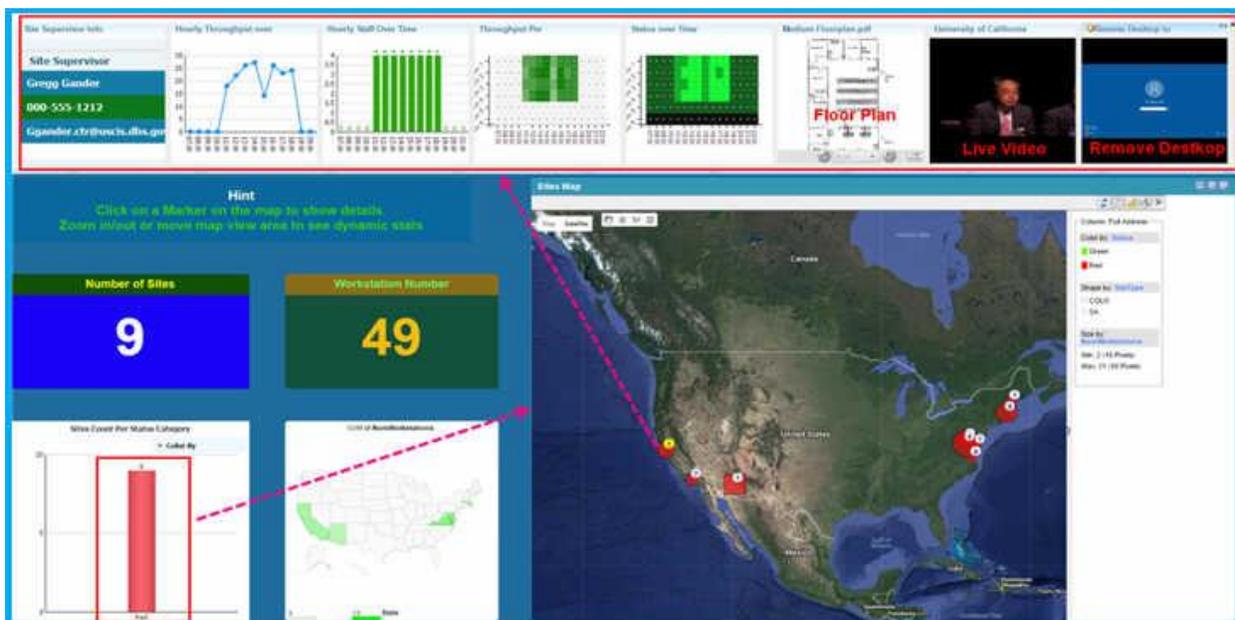
Simply Clicking on a Marker in the map, it will dynamically display the related Objects. In this case, it is showing the Site Supervisor's contact info, charts with hourly statistics of the site,

physical floor plan, and a remote desktop access to the remote Windows workstation. These Objects and related information can be live, dynamic and interactive.

If a user then clicks on the full-screen icon of one object displayed above, such as on the heat-grid chart above (the 5th object on the live objects above), it will go full-screen and show the details of that visual chart.

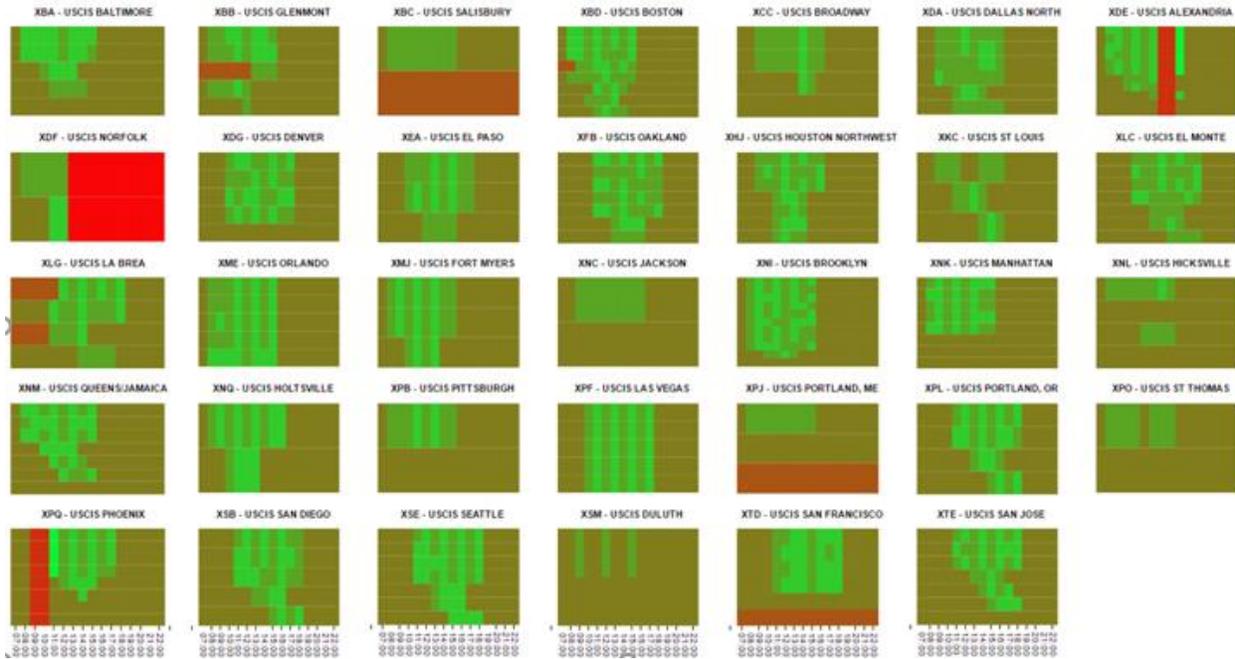
The 7th object displayed above is an object for *Remote Desktop Access*. Clicking it to go full-screen, a user can login to the remote Windows machine, and perform remote configuration/trouble shooting right in the web browser easily, so this is not only visible and analytical, but also *actionable*.

We can also combine other charts with the Map interface into *one single dashboard*. For example, there is a bar chart in the below dashboard with the number of sites across two different status indicators (red and green). If a user clicks on the red bar, the Map will automatically update to show the 9 Facilities that are in red status. This allows the manager to quickly identify facilities that need attention. The user can then click on a Marker of red color to see more detail and gain deep visibility quickly. This can save time and money, improve operational efficiency and make better data-driven decisions seamlessly.



The following *heat-map* shows a dynamic view of all Facilities at-a-glance, with the hourly *Productivities* and *Status* of each production-line at each Facility through the day.

The different green colors show hourly productivity for each production line, and the different red colors show how serious it is for each production line throughout the day.



Learn More

To learn more about how SitScape’s technology solutions can help you increase your situational understanding, optimize your analytics-based decision making, improve your secure information sharing and real-time collaboration capabilities, please contact us at info@sitscape.com, or call us at 888-762-6562, or visit our web site at <http://www.sitscape.com>.

About SitScape, Inc.

SitScape Inc., the recognized leader of software solutions for Intelligent Digital Operations and Digital Enterprise Enablement, is trusted by the Federal government and various Fortune 500 organizations for real-time collaboration, agile data correlation, continuous monitoring, analytical visualizations and flexible straight-through-processing (STP) automation. Our solutions support critical decision making at real-time with our self-service, easy-to-use, highly collaborative User Defined Operating Pictures (UDOP) graphical user interface, and the underlying engines with unmatched data correlation, analytics, monitoring/alerting and process automation capability for the next-generation digital operations.



Smart Operational Intelligence

Business Performance Analytics

Real-time Collaboration

Multi-Source Data Correlation Fabric

Continuous Monitoring | Alert | KPI

Straight-Through-Processing (STP)

Shared Situational Awareness

Common-Operating-Picture

User-Defined-Operating-Picture

User-Defined-Operating-Picture

Common-Operating-Picture