

Should Your GIS And OSS Get Married?



Providers can gain operational efficiencies by using a geographically intelligent central data repository.

By Scott Combs ■ *Mapcom Systems*

As the parent of an OSS or a GIS (operations support system and geographic information system, for those who don't have one in the family), you worry, wonder and hope. You worry about operations, wonder about improvements and hope your decisions make life better for those who use your systems daily. You try to make the best possible decisions by learning from the experiences of others. Perhaps you have seen advice recommending a single, central database from sources such as the FTTH Council Europe's FTTH Business Guide. To help you consider whether to integrate your GIS and OSS, let's weigh the advantages and disadvantages of the alternatives.

The FTTH Business Guide suggests that planners, designers, contractors and local authorities use a central database during the planning, design and build of a fiber project. The great benefit of such a data source is that everyone works from the same, always-up-to-date information. If a central data source improves the planning, design and build of a broadband project, can it also improve the operation of the completed broadband network – and, if so, how? Or, to put it another way: Should you marry your GIS to your OSS?

GIS and OSS usually live in two separate worlds. GIS manages location-based information using maps, while OSS manages processes such as order entry, provisioning and repair. They commonly intersect only as an afterthought, perhaps when someone thinks, "I wish I could see these new orders on a map." To supply the needed geographic

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context, OSS data must be handed off to the GIS to be mapped.

What if operational data lived in a geographic context so that visualizing an operational data set was inherently natural? Such an approach would differ markedly from the usual one.

Placing information in a geographic context is a distinguishing characteristic of a geographic operations system, or GOS. Other distinguishing features are reliance on a map as the primary interface and the extension of the central database from the planning and build stages to operations. The combination of these characteristics enables more-efficient operations through visual decision making. When information is shared across an organization in geographic context, nearly all departments can benefit.

ADVANTAGES OF VISUAL DECISION MAKING

Is a picture worth a thousand words when it comes to decision making? Can a visual improve the efficiency of an op-

eration? The more complex the situation and the more information that is required, the more likely it is that a visual will enhance the decision process.

With a foundation based on geographic context, a GOS simplifies the effort required to analyze data that naturally lends itself to visualization. Consider managing a mobile field workforce that is installing new services as well as repairing and maintaining existing services. How could you analyze whether trouble spots are related to location? How would you compare the instances of trouble with the instances of new services? Are there relationships between trouble and new services?

Analyzing where trouble occurs and where new services are sold brings together data from multiple systems that you might wish to look at over various time frames. All these questions point to opportunities to speed analysis through the display of complex information in a geographic context.

About the Author

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OPERATIONS

THE POWER OF A GOS

Following the life cycle of an FTTx project is a good way to demonstrate the benefits of a GOS. As the operators of FTTx projects move through the planning, design and build stages into operations, every department has access to a growing pool of information to guide its individual decisions. FTTx projects offer opportunities for a company to realize the power of a GOS at each stage, whether the company performs planning and design internally or through contractors.

At the beginning of a project, visualizing demographic information geographically makes planning criteria much easier to analyze. The number of employees at business locations and the income range and education levels of neighborhood residents are all good indicators to guide the rollout of any broadband project. With such data, target areas can more easily be identified and routes can be planned. Aerial photography, another GOS feature, makes it easy to identify major obstructions and select rights-of-way for routes that will pass the largest number of potential customers.

As the phases and routes are finalized, what-if alternatives can be engineered to show which homes and businesses are reached by various equipment types and placements. The complex trade-offs between equipment, pedestal, pole, loop length and geography are easily communicated to management and boards through a map generated and maintained in a GOS.

Once the design alternatives are engineered, the return on investment can be modeled in better detail with geographically based take rates and unit revenue projections for each neighborhood or region. The impact of changes to the take rates and revenue better illustrates the importance of each variable and area to the payback on the project.

After the project is designed and approved, the design information is available for the construction team. The chosen design becomes pre-post construction documentation, which provides staking sheets for the build. Ultimately, after construction notes are added, the design becomes the as-built with no redrawing needed.

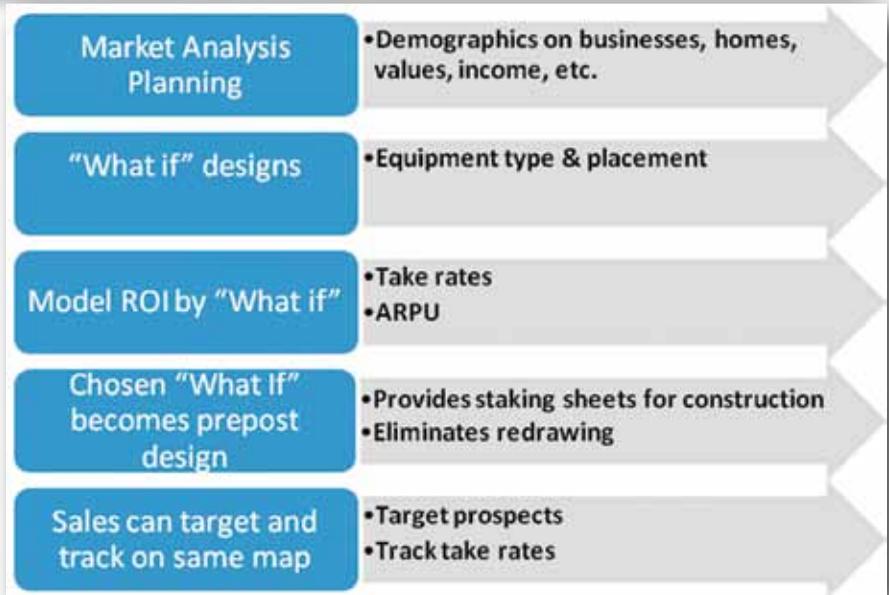


Figure 1: Fiber Project Phases and GOS Benefits

As construction is completed, marketing and sales departments access the same structures and demographic data to create marketing lists, focus sales efforts, track take rates and measure revenue. Marketing is able to monitor the progress of service availability during the build in order to synchronize demand creation with the build process so that customer expectations are exceeded instead of disappointed.

A GOS also helps providers differentiate themselves through customer service. When providers have to compete for customers, the organization

that answers the most questions with the least amount of hassle wins the customer-service battle. A GOS delivers more information to customer-facing representatives than stand-alone systems that do not talk to the systems of other departments. Being able to access information through a GOS helps a CSR turn around calls quickly and complete transactions on the first contact. Instead of having to check with the engineering or scheduling departments for more information, the CSR has direct access to these systems, which opens the door to streamlining workflows.

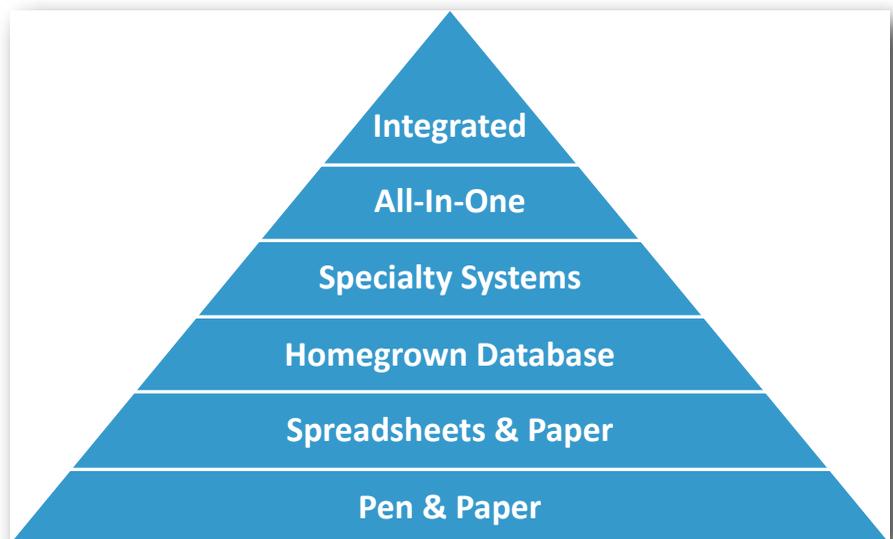


Figure 2: The Continuum of Systems

APPROACHES TO GOS ARCHITECTURE

The systems telecom providers use today fall somewhere along the continuum, illustrated in Figure 2, between manual, paper-based systems and automated, tightly integrated, electronic systems. Most providers now use homegrown electronic systems, at a minimum, for their OSS, but a surprising number of them still use paper for GIS. (Yes, some will argue that paper is not a true GIS, but it serves the purpose of sharing location-based data.)

The migration paths to a tightly integrated GOS are many. Depending on the GIS and OSS systems already in place, the path to a GOS can be designed to preserve the best elements of the existing systems, replace troublesome systems and enhance all systems by improving the sharing of information. Marrying the GIS and OSS systems could even leave all the existing systems in place and simply enhance

the exchange of information through integration. Typically, a phased strategy integrates, replaces or enhances existing software systems in the order that best supports the organization's strategic priorities.

The most significant consideration in moving to GOS is the openness of the existing architecture. There are many approaches to GOS architecture, as there are with OSS. Systems can be open to interfacing, integrating and working with other systems or can be closed islands that limit functionality.

An OSS is typically not even a single piece of software. A quick review of the tools used by each department usually shows that the OSS comprises many separate systems. The openness with which these software tools interface is a key factor in whether your GIS and OSS *can* be married. As you move from homegrown systems to specialty systems or all-in-one systems, maintaining an open attitude toward sharing informa-

tion among tools will determine whether you ever reach optimal efficiency.

Another architectural decision is whether to take the step to an all-in-one system that assembles or programs all requirements into a single system. The alternative is to keep the existing specialized systems that are working today and integrate them to enhance your operations. Again, the question of whether your GIS and OSS *can* be married arises. Are the existing systems open to sharing information with other tools so that happy marriages can be made? Delivering a complete operational portfolio by bringing together the best tools for each department and sharing data is at the very heart of the marriage between GIS and OSS.

Flexibility is to be prized in a rapidly changing, competitive environment where needs evolve and requirements change. An OSS that plays well with others preserves the value of the existing software investment and provides a phased approach to improving operations. The flexibility of the GOS approach allows new tools to be added as the operation expands and takes on new opportunities. A powerful GOS brings together the best of these architectural alternatives to deliver an open system that combines existing and new systems with the key ability to share information across departments in geographic context.

CONCLUSION

Should you integrate your GIS and OSS? That depends. Do you operate in an increasingly complex business that requires sifting through volumes of information from different systems to make decisions? Consolidating and correlating the data from these disparate systems, then sharing that information through an open, flexible, geographic interface will speed decision making. Does your management require regular measurement of performance factors such as take rates, churn, trouble calls and workforce efficiency? A GOS delivers those operationally critical measures in a geographic context. Do you think you should marry your GIS and OSS together? I do. **BBP**

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