

Appendix A: Product Brochure



October 2015

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Our Products

Our software uses powerful algorithms and effective system visualization to make large sets of connected data more valuable and comprehensible.

PsynthDB™

The math that describes how to organize complex systems is known as graph theory. Google, Netflix, LinkedIn, and Facebook are all at their core powered by this branch of mathematics. Even with its impressive track record of success the potential applications for this incredibly powerful math are still vastly underexplored and the numbers reflect that: adoption of graph databases has grown by 250% per year for the past two years in a row.

When we were evaluating existing solutions in this market to find one that met our needs we couldn't find one. So, we built one: **PsynthDB™**, a developer-friendly graph database exposed through a python API. It has a ton of advanced analytics features out of the box, including :

- A core run by the powerful Boost library, offering C++-like performance with the ease of use of modern programming languages
- Excellent speed: multi-core support for excellent scaling
- Centrality measures for determining the most important components of a system
- Multiple layout types including spring-block layouts and radial trees
- Deep Links save more information about connections than standard graph edges:
 - Links have Types
 - Links can be directed, undirected, or bidirectional, and multiple Link Types are supported in one graph.
 - Links can have floating point values assigned to them
- Nodes and Links can have arbitrary data attached to them, including Python objects
- Can be used locally or easily exposed RESTfully

GooleyJS™

Big systems are difficult to work with. Social networks, supply chains, business processes, financial interactions, software, network infrastructure: because of the limits of human working memory, we can't keep such large systems in our heads. For this reason effective visualization can be very valuable but existing solutions are either overwhelmingly technical or incredibly one-dimensional.

Using visual design principles we have built a dedicated system-level interactive visualization suite. Tied to the immense capabilities of **PsynthDB™**, our software can generate interactive representations of systems and networks that provide unparalleled insight into enormous quantities of data.

The framework we have developed for this is **Gooley™** (a play on GUI, the acronym for Graphical User Interface). This is a hardware-accelerated framework for building data driven web-based applications.

- As a visualization solution based in graph processes it is uniquely effective at representing a wide range of complex and valuable systems
- Extensible to include other more standard chart types (bar, line, scatter plots, etc.)
- Implemented through WebGL technology which allows much larger amounts of data to be displayed on screen (at the same time) through the browser

Maestro™

Maestro™ combines the speed and analytic capacity of **PsynthDB™** with the **Gooley's™** class-leading visualization abilities. **Maestro™** is a hosted, end-to-end Graph solution. It provides an intuitive interface for easily integrating existing data into **PsynthDB™**. Major features:

- Can be used directly as a plug-and-play front-end for existing graph databases, including Neo4j and **PsynthDB™**
- Can synthesize collections of spreadsheets into a graph, enabling new analytic tools
- Connect to GitHub to automatically visualize codebases
- Connect to RESTful data APIs to visualize directly
- Fully collaborative
- Easy to customize
- Built on the outstanding **Gooley™** framework for data-driven applications

Our Customers

PsynthDB™ and **Gooley™** independently, and together as **Maestro™**, provide a unique, valuable suite of offerings. Our customers fall into two categories: those already using graph analytics as part of their core business and those who should be.

Customers Who Already Use Graphs

Virtually every industry is starting to adopt graph databases:

- Social Networks (Facebook, LinkedIn, dating sites)
- Healthcare (Zephyr Health, Mercy, Mt. Sinai)
- Hardware manufacturers (Apple, Samsung)
- Consulting and Analysis (P&A, Bain & Co, Gartner)
- Biotechnology (Monsanto, Merck)
- Network impact analysis, particularly identifying root causes (Siemens)
- Detecting fraud (Citi, Credit Suisse)
- Route finding (transportation companies, Google Maps, Apple Maps)
- Recommendations (Yelp, Facebook, Netflix, Google)
- Military (DARPA, IARPA, Dep. Homeland Security)

PsynthDB's™ unique capabilities (such as the ability to represent bidirectional relationships and the ability to have directed and undirected relationships in the same graph) offer these customers novel ways to model complicated interactions. **Gooley™**, our interactive visualization solution, provides peerlessly clear and useful representations of their data. **Maestro™** makes it easy to migrate from existing solutions.

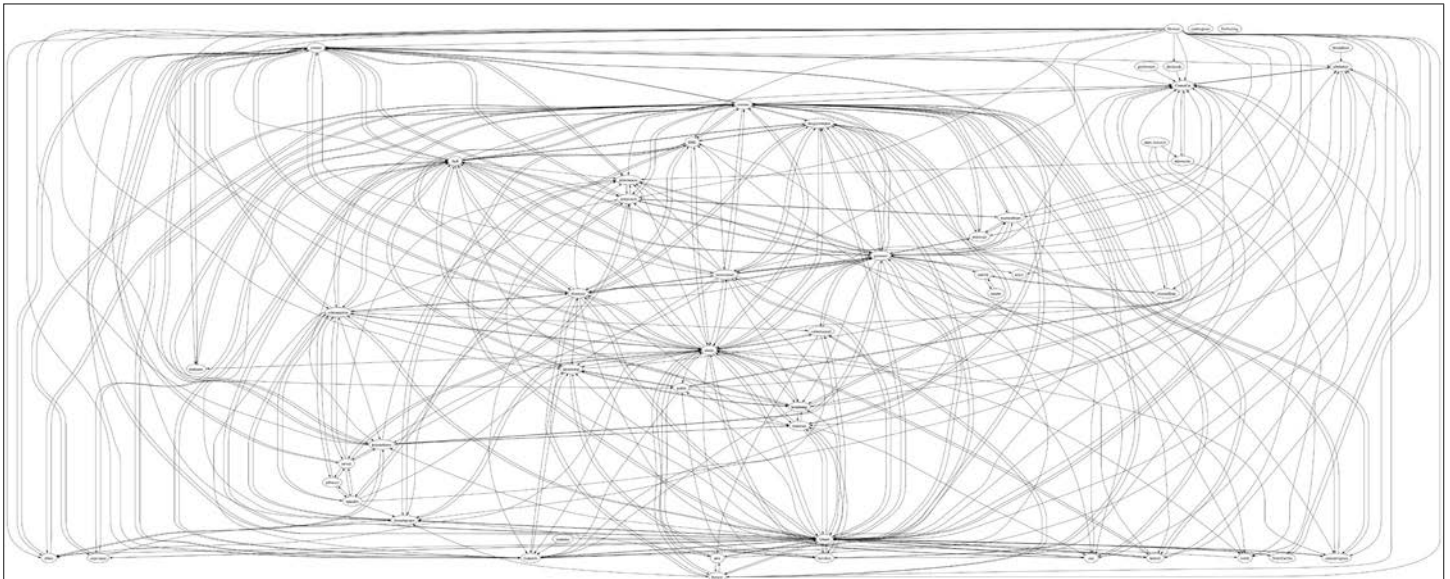
Case Study:

Advanced Hardware/Software Design

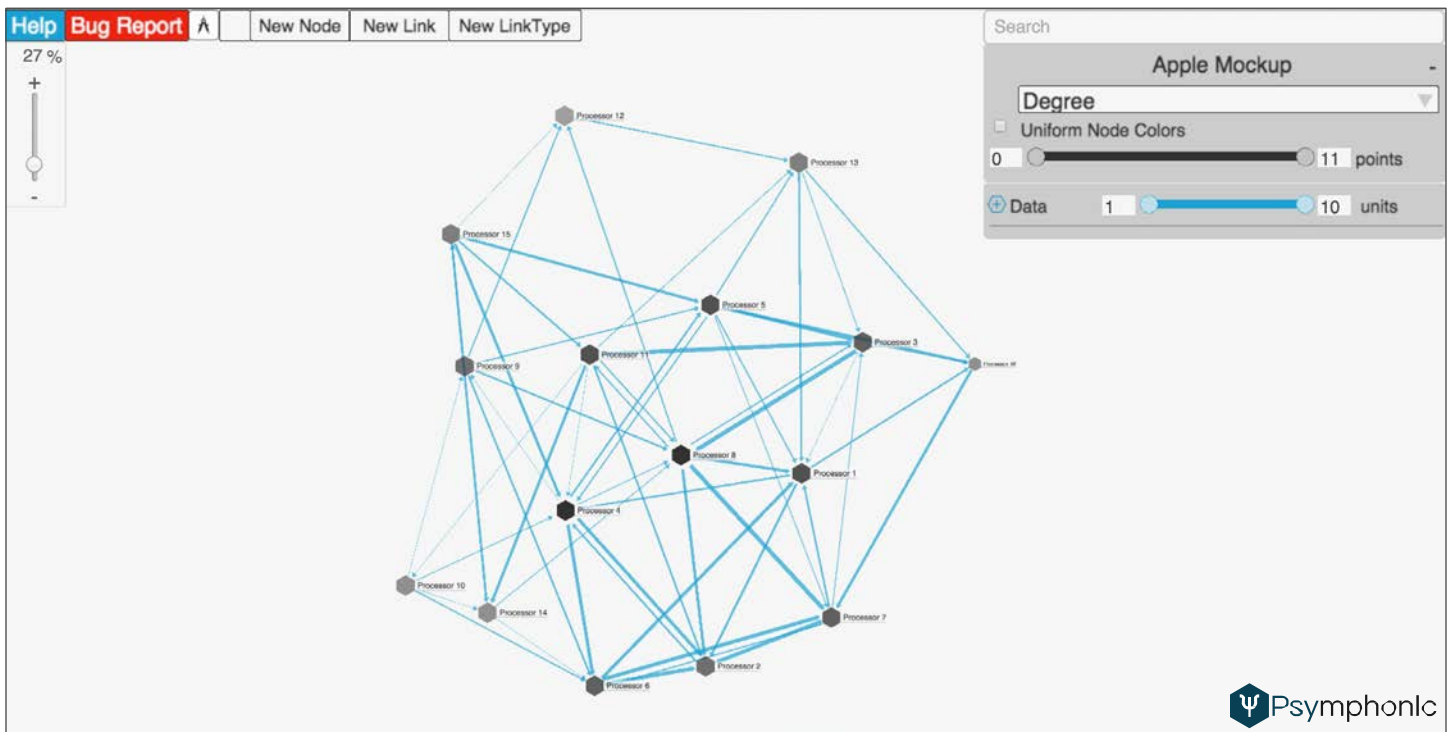
Apple Inc.
118,000 employees
\$637 billion market cap



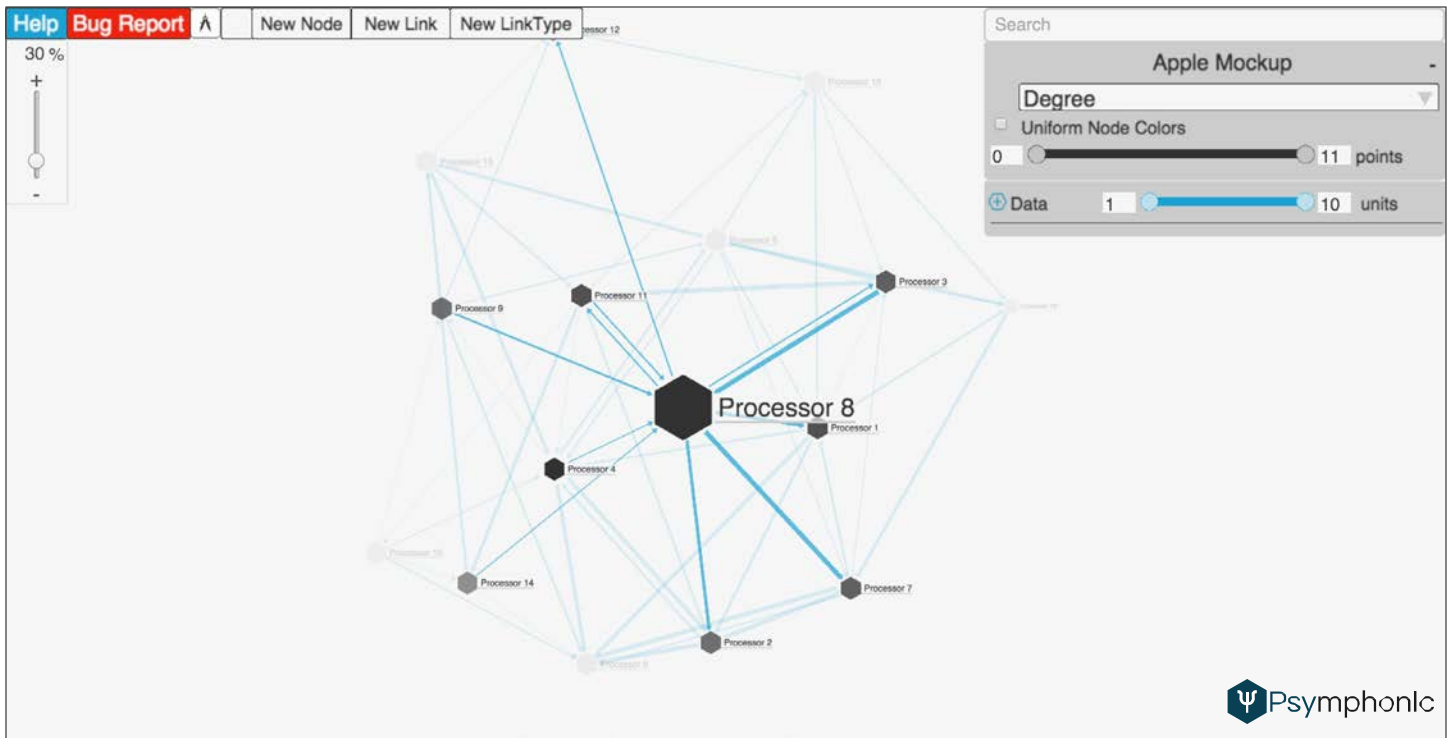
Apple uses graph visualization to understand how their processors interact with one another when their camera launches, among many other problems. Currently they use immensely complex, convoluted static images built in open-source solution graphviz.



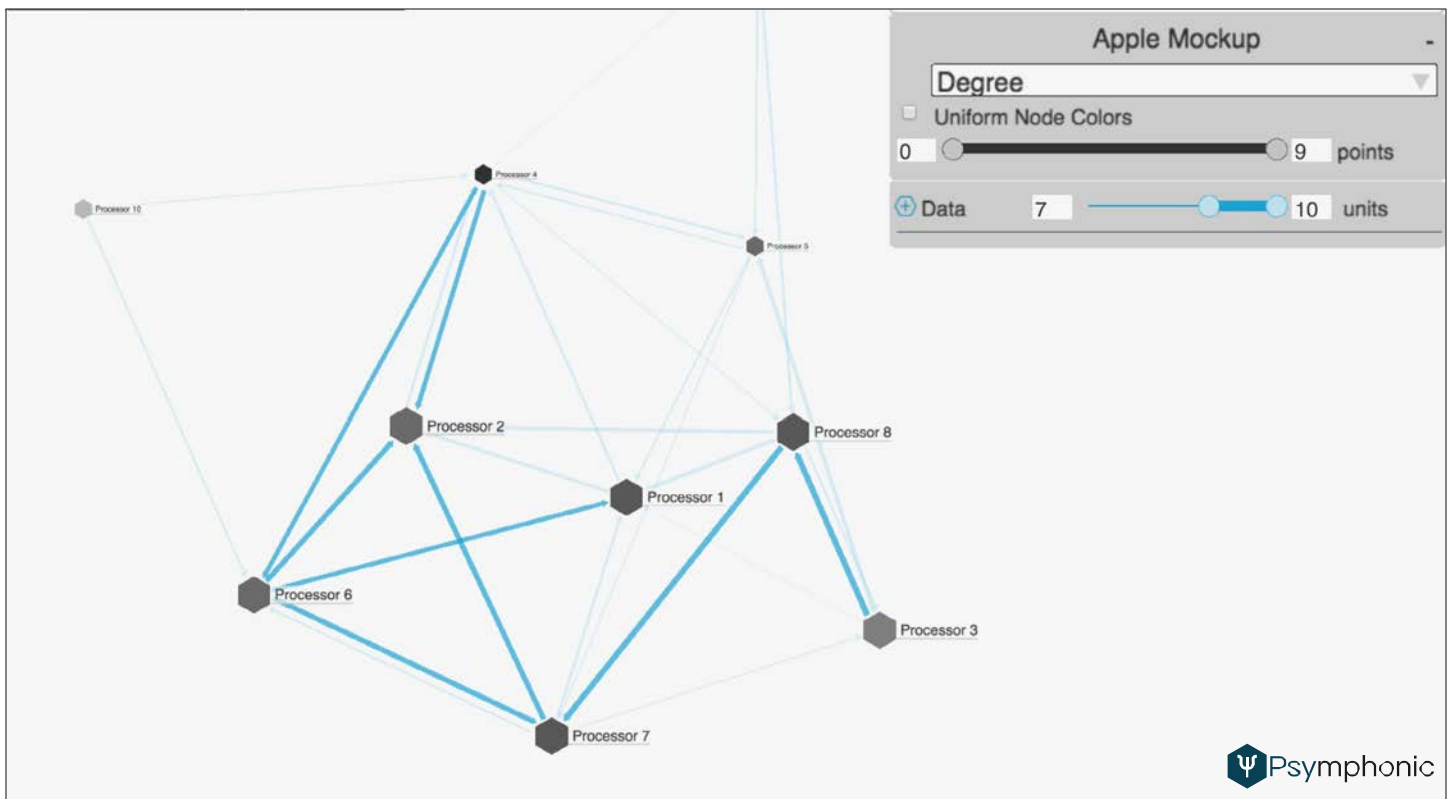
This is our solution.



Interactivity lets them understand each processor core's activity individually.



Filtering out weaker links allows them to see only the heaviest data exchanges.



The power and ease of use of our visualization suite will allow Apple's world-class talent to spend less time struggling to understand their processes, and more time improving them.

Customers Who Should Be Using Graphs

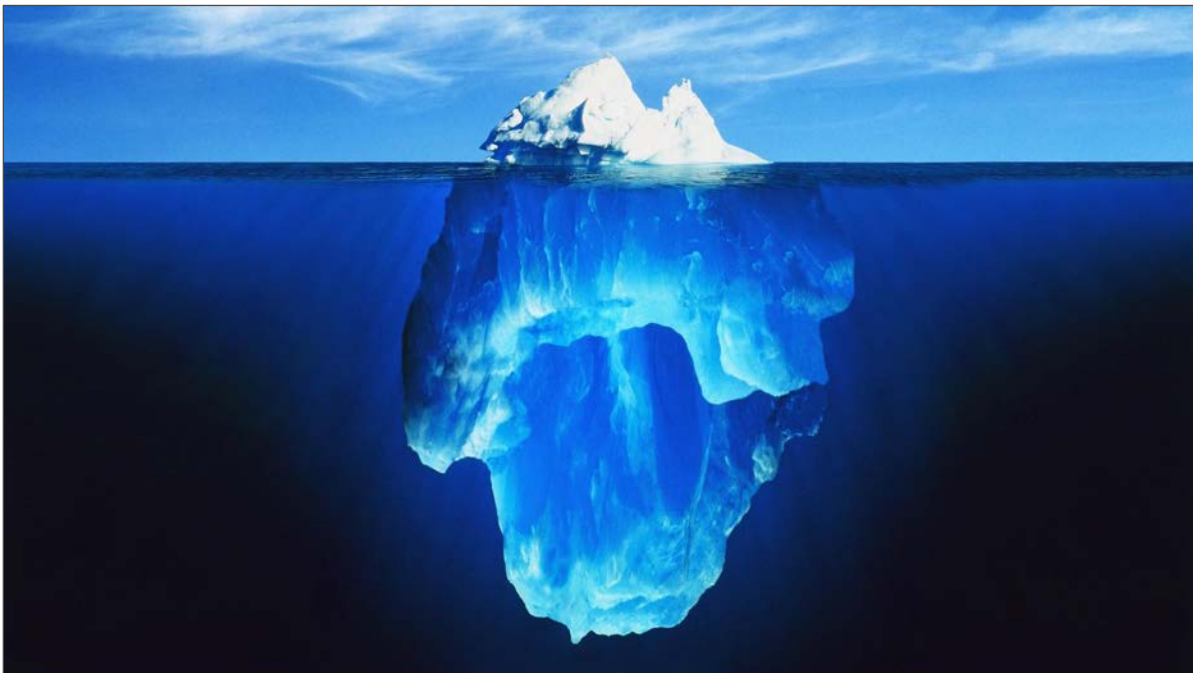
- **Call centers and support providers** - Understanding patterns in customer behavior, diagnosing failures, and optimizing processes.
- **Software/network architects** - Generating live-updating system visualizations, planning new systems and software.
- **Developers** - Visualizing the structure of complex or unfamiliar codebases to decrease onboarding time for new team members.
- **Salesforces** - Analyzing relationships between existing and prospective customers; maximizing value of personal and professional social networks by visualizing and superimposing LinkedIn, Facebook, or Yelp data.
- **Accountants** - Understanding cost centers, spotting discrepancies and patterns of fraudulent behavior, big-picture financial awareness, and presentation of findings to leadership.
- **Retailers** - Identifying patterns in buying behaviors.
- **Sysadmins/IT Management** - Root cause analysis, monitoring systems for vulnerabilities or attack, understanding the layout of unfamiliar systems, and managing permissions.

Most of these industries currently use unwieldy masses of spreadsheets and long, boring powerpoint presentations to understand and communicate the connections in their data; no one else is offering an end-to-end graph solution like **Maestro™**.

We make it:

- Easier to get your data into graphs.
- Easier to build applications relying these graphs.
- Easier to get valuable insight out of graphs.

As far as the market for graphs is concerned these customers are the part of the iceberg that is submerged.



Case Study:

Visualizing Potentially Dangerous Drug Interactions

WebMD Inc.
1,600 employees
\$635millionannualrevenue

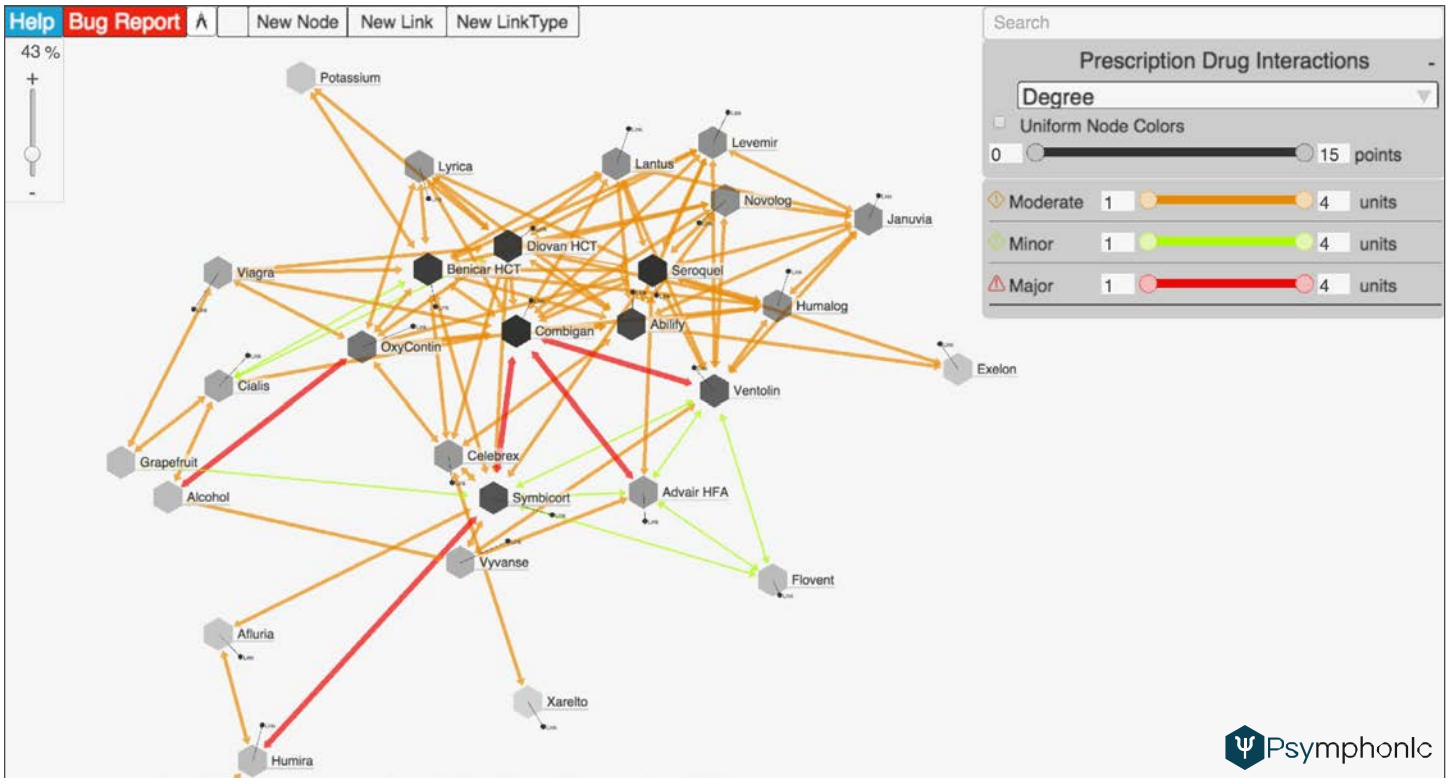


With over 12 million unique monthly visitors, WebMD is one of the leading sources of health information on the internet. Their business is built on communicating complex information in an accessible fashion.

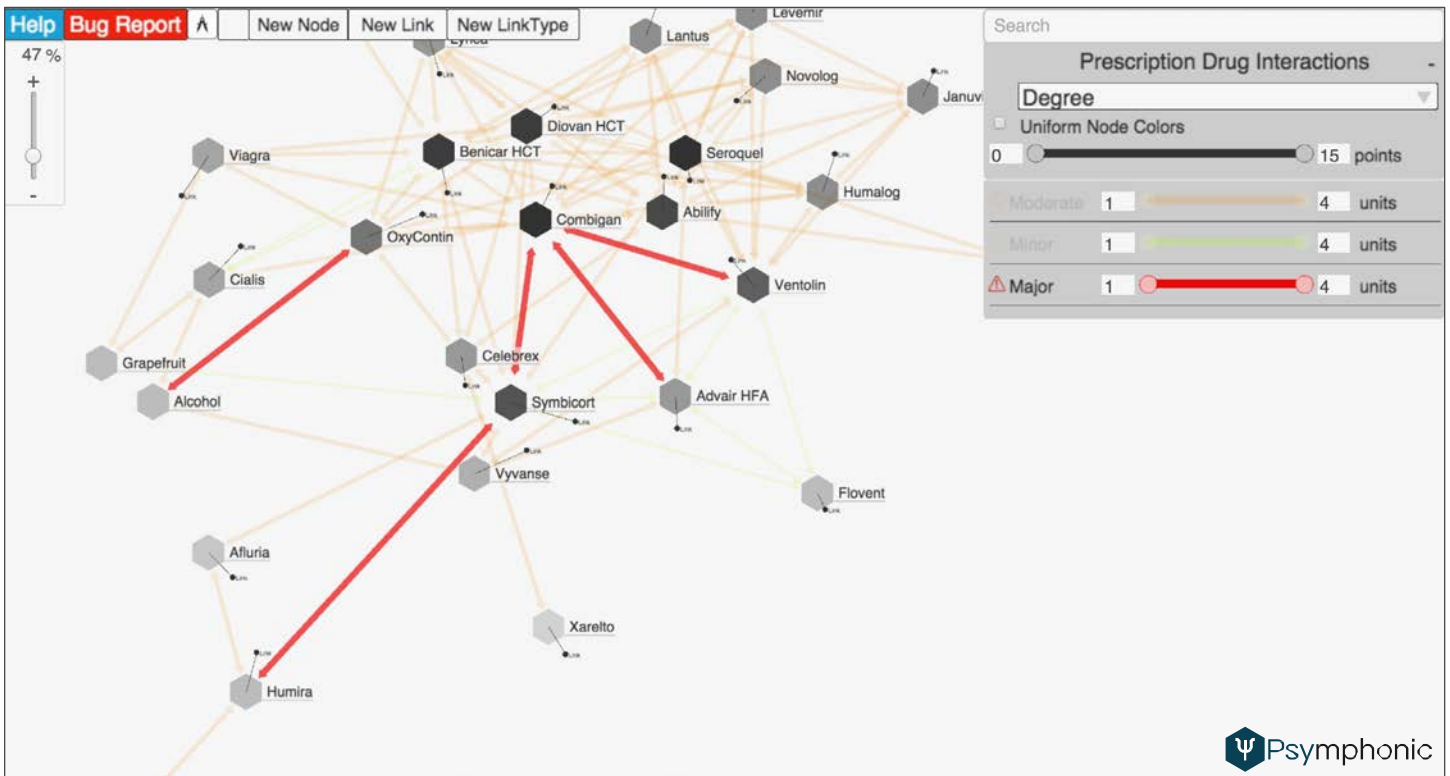
One of the tools they offer is a drug interaction checker which allows you to enter a list of drugs. Their tool will then provide a long, color-coded list of interactions.

All (9)	Do Not Take Together (0)	Serious (0)	Significant (7)	Minor (2)
<p>Significant - Monitor Closely:</p> <p>Significant interaction possible (monitoring by your doctor required)</p>			<p>Combigan ophthalmic + Humalog KwikPen subcutaneous</p> <p>Combigan ophthalmic, Humalog KwikPen subcutaneous Mechanism: opposing drug effects</p> <p>Additional Information: Reduced insulin secretion, increases blood glucose, and increased time to recover from low blood glucose episode.</p>	
<p>Significant - Monitor Closely:</p> <p>Significant interaction possible (monitoring by your doctor required)</p>			<p>Combigan ophthalmic + Ventolin HFA inhalation</p> <p>Combigan ophthalmic decreases effects of Ventolin HFA inhalation by opposing drug effects</p>	
<p>Significant - Monitor Closely:</p> <p>Potential for interaction</p>			<p>Humalog KwikPen subcutaneous + Seroquel oral</p> <p>Seroquel oral, Humalog KwikPen subcutaneous: Other mechanism</p> <p>Additional Information: Atypical antipsychotics may increase blood glucose levels, reducing blood glucose control.</p>	
<p>Significant - Monitor Closely:</p> <p>Potential for interaction</p>			<p>OxyContin oral + Seroquel oral</p> <p>OxyContin oral and Seroquel oral both increase sedation and drowsiness</p>	
<p>Significant - Monitor Closely:</p> <p>Potential for interaction</p>			<p>Combigan ophthalmic + Ventolin HFA inhalation</p> <p>Combigan ophthalmic increases and Ventolin HFA inhalation decreases potassium levels in the blood</p>	
<p>Significant - Monitor Closely:</p> <p>Potential for interaction</p>			<p>OxyContin oral + Ventolin HFA inhalation</p> <p>OxyContin oral increases and Ventolin HFA inhalation decreases sedation and drowsiness</p>	
<p>Significant - Monitor Closely:</p> <p>Potential for interaction</p>			<p>Seroquel oral + Ventolin HFA inhalation</p> <p>Seroquel oral increases and Ventolin HFA inhalation decreases sedation and drowsiness</p>	

When researching more than a few drugs at once, the complexity and number of the interactions make comprehensive understanding nearly impossible. Given the potentially dangerous consequences of drug interactions, we created an interactive chart for the 25 most prescribed medications in America.



Our software's ability to filter out types of links allows the most dangerous interactions to be quickly identified.

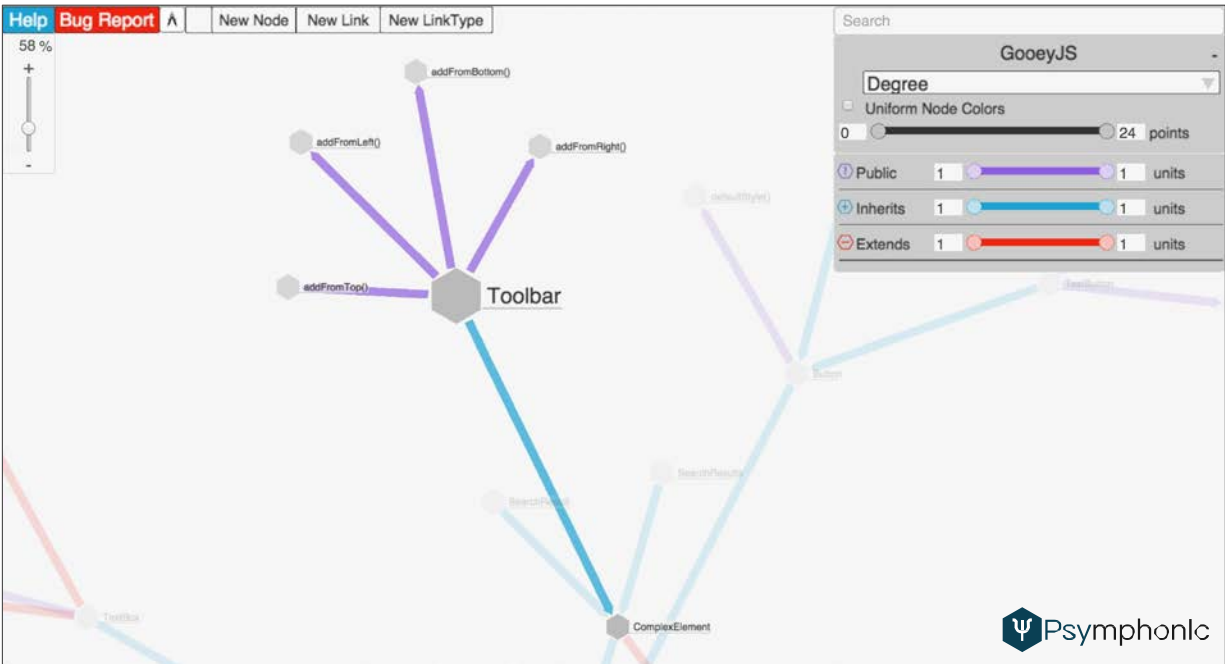


Case Study:

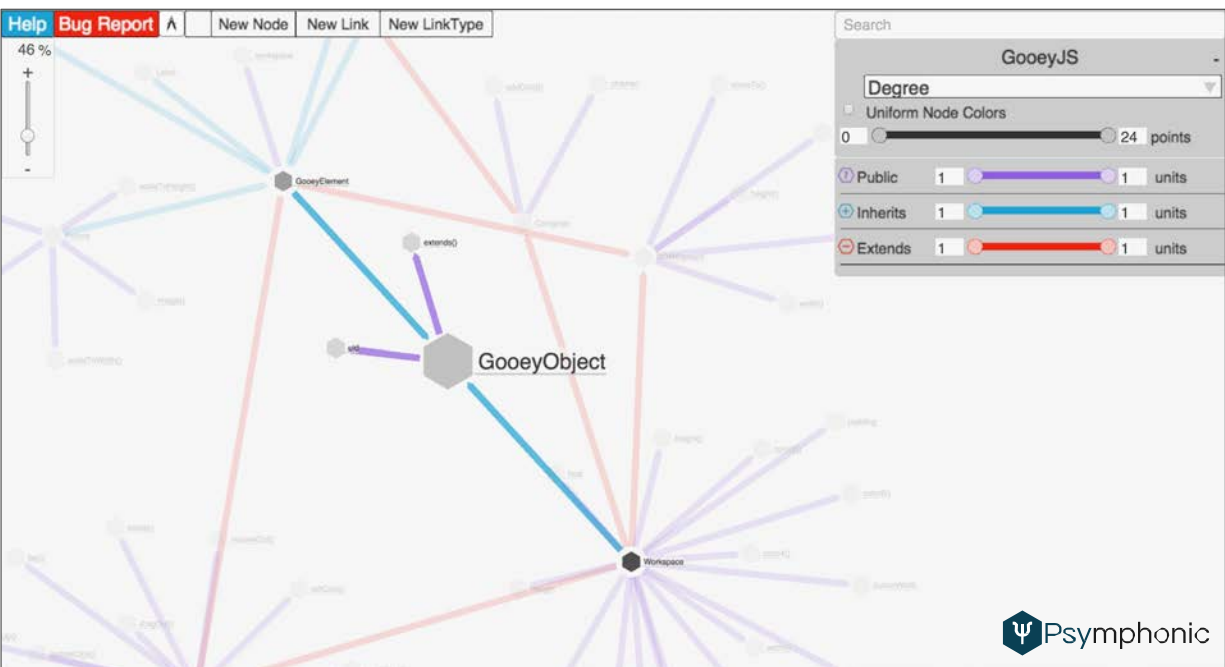
Visualizing How Code Works



Ask almost any talented developer and they will confirm that they understand their code as a graph in their own minds; the challenge comes in communicating this graph to others. Our talented developer is no exception, so he built this visualization of our codebase:



By visualizing the way that the core components of our software interact with one another he was better able to plan and structure new features.



Generating these kinds of visual representations of complex software would be invaluable for facilitating communication between developers (particularly those off-shore or working remotely) as well as between developers and less-technical managers or coworkers.