
Windchill ProductPoint: Exploring the product

A whitepaper by TechniCom Group LLC

June 2009

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Introduction

Windchill ProductPoint successfully builds on the advanced collaborative capabilities of SharePoint 3.0.

Some of you may be familiar with my tendency to categorize most of today's PLM systems as still being too hard to use and getting in the way of the typical design engineer. This exploration of ProductPoint is changing my mind.

Windchill ProductPoint (which we shall simplify by calling it ProductPoint) is based on SharePoint, Microsoft's technology infrastructure for collaboration. SharePoint has already been well adopted across manufacturing companies as a backbone for Office applications, primarily for document sharing and management. ProductPoint, enables SharePoint to understand and store complex CAD data and gives SharePoint reach into the world of Product Development. A future release of Windchill ProductPoint will go further and support the sharing of information among other Windchill-based systems.

SharePoint provides a substantial step up from shared servers that are commonly used today by smaller companies; among the most important are: storage in a central repository, web based access to the repository, document level permission access control, automatic document revisioning, and extensive search capabilities. Locating files in a central repository eliminates many of the nightmares associated with individual ownership of documents. Microsoft positions SharePoint as a social computing platform, implying that a diverse user set can share data. ProductPoint builds on SharePoint by adding extensions to manage the large file sizes and complex file structures inherent to mechanical products.

SharePoint 3.0, the current version, is included with every copy of Windows Server 2003 and 2008. It appears to be ubiquitous, with more than 100 million licenses sold. SharePoint is ready to use by itself, but can also serve as a platform for other applications such as Microsoft Office SharePoint Server (MOSS) and Microsoft Project Server. SharePoint also is a foundation for building web-based applications, such as has been done for ProductPoint. ProductPoint complements SharePoint and enables use of many of the enormously productive features of SharePoint for product development. Notable among these are document storage, enterprise searches, and the productivity associated with a total web based application. The Executive Summary has more information about how ProductPoint works with SharePoint.

ProductPoint benefits companies of all sizes. In the case of smaller companies, installing SharePoint and ProductPoint provides an ideal entry into collaboration and product lifecycle management (PLM). For larger companies, who probably already have SharePoint installed, ProductPoint extends their SharePoint strategy by extending their product development system to broader user communities.

Capabilities of ProductPoint include:

- Multi-CAD SharePoint services offering basic functions for managing Pro/ENGINEER data as well as other CAD file formats, their structures, and inter-relationships
- ProductView services enable visual product interaction with 3D thumbnails, visualization of lightweight product viewables, and Web-based markup tools for redlining designs
- Visual navigation and interrogation of file dependencies
- Windchill Portlets present Windchill information (e.g. task lists) to users using a familiar SharePoint portal web interface
- A Windchill PLM Connector enables sharing of CAD data across Windchill-based systems in support of customer or supplier collaboration, or internal collaboration among different divisions

ProductPoint appears to be the beginning of a new class of products that build on the lessons learned by the latest developments in social networking. In fact, we are beginning to see an interest in what is being called "social product development." What does this actually mean? No crisp definition yet exists but Twitter, Facebook, LinkedIn and its ilk seem to have opened up a vast desire to connect with others instantly. This differs greatly from typical engineering processes, whereby a product developer designs in his cubicle, then after a relatively large amount of time, shares his design with others for comments, criticisms, and feedback.

Our aim with this paper is to inform people about ProductPoint, from a relatively unbiased point of view. It continues as another step in our goal of helping users make better decisions when selecting software solutions to improve product development and engineering performance.

Executive Summary

ProductPoint extends SharePoint brilliantly

PTC's ProductPoint brilliantly extends SharePoint so that it maintains all existing functionality, yet adds new function that supports product structure, adds extends security, adds an automatic locking mechanism that protects overwriting products being updated, adds a version history mechanism, and adds integral support for Pro/ENGINEER.

A SharePoint web application, ProductPoint can be installed into an existing Windows SharePoint environment. SharePoint normally has no knowledge of product structure.

To add this type of knowledge, ProductPoint, upon installation, extends SharePoint by adding a separate ProductPoint structure database, shown in the diagram as the database called NDS, in addition to the SharePoint content database (WSS DB). By doing it this way, all normal functions of SharePoint (which are considerable) are preserved.

SharePoint maintains a collection of data "sites." ProductPoint adds a **Products** site collection and a **Catalog** site when installed. Multiple product sites are typical, with each possibly representing major product lines. Sub sites can be defined under a product site collection. Each product site can organize a product or project team and information both to facilitate collaboration and to limit access. Customers can choose to use or to hide the Product Site collection or to re-label it to serve their unique needs. For example, companies who do project or job engineering work

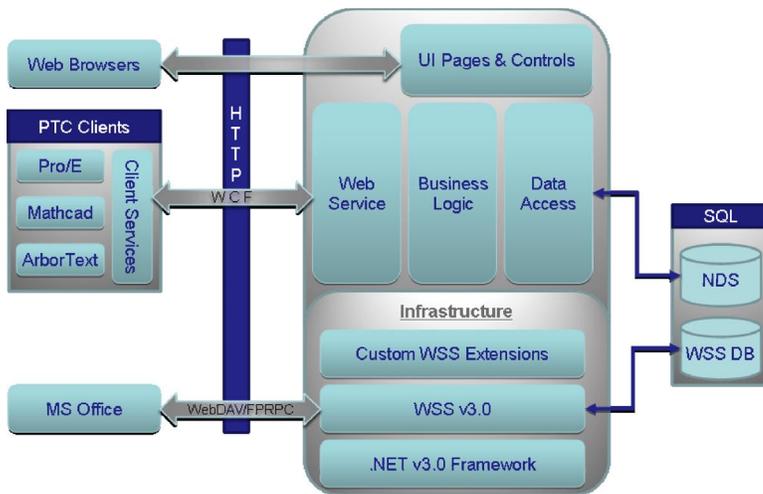
may choose to re-label this site "Project" or "Job" and to add attributes specific to their business.

The **Catalog** site serves as a repository for standard parts, templates, formats and standard documents. It is installed using an out of the box set of folders that can be extended, modified or deleted. Customers can choose to manage all their product development documents in this single site with an organization of folders and sub folders appropriate for their business. Customers can define folders with folder-specific permissions, such as to define folders for start parts, drawing formats and standard parts, which are read only, modifiable only by administrators. The use of a single catalog site is recommended when customers need to frequently move parts among locations (moves across sites are not supported in SharePoint).

Searching from within Pro/ENGINEER has all the power and the same behavior as when searching from a browser running SharePoint. Users can start work from either or from a browser. Pro/ENGINEER can be launched and opened with ProductPoint-managed content through an "Open in Pro/ENGINEER" action from within a browser.

Highlights

ProductPoint is an excellent fit for many users, and is particularly well suited for small collaborative teams, offering most of the necessary basic functions of product data management. It consolidates product data into one easily accessible repository that is readily accessed by product developers and non-technical personnel. It builds on Microsoft SharePoint, and thus also includes and neatly marries with the many advantages of a collaborative system for documents of all types. Many smaller companies may have already found that SharePoint alone offers a useful system



Pricing

ProductPoint, being a web based application, is licensed by named users, not network licensed. ProductPoint licenses range in price from \$1500 to \$500 for the authoring and viewing versions respectively.

Exploring Windchill ProductPoint

for collaboration of file-based documents. For product development organizations that already have SharePoint installed and operational, the upgrade to Windchill ProductPoint is a “piece of cake.” Product development organizations with neither SharePoint nor ProductPoint installed can, at relatively low cost and effort enormously enhance their collaboration and the management of critical data.

With ProductPoint, basic data management becomes easy and is ideally suited for the small customers that may only have a few people in product development. The system handles their day-to-day needs and is fully web-based. Being fully web based, ProductPoint also offers the ability to take advantage of worldwide design.

To begin using ProductPoint, you activate it from within a browser. **ProductPoint allows managing the product and the product structure data and controls the product and product structure data within a ProductPoint data repository.** Dragging products into the ProductPoint repository copies the data and structure into ProductPoint.

ProductPoint’s product page displays the all important structure of the product and attributes of the product, such as: revision number author, date modified, etc. **The system automatically updates the revisioning when a file with the same name is saved.** Most important for collaborative systems is the ability to lock documents in assembly structures that are being changed, thus preventing multiple user from overwriting other changes in progress. This locking mechanism sets itself automatically within Pro/ENGINEER if the user opens a product and begins to modify it. The system automatically updates the lock within ProductPoint to indicate that the product will be checked in at a later date.

ProductView, PTC’s excellent view and markup software, plays an integral role in ProductPoint and comes in two versions for ProductPoint. A ProductView Lite is included with ProductPoint. ProductView Professional, an optional version, includes everything in ProductView Lite plus additional capabilities such as interference checking and additional sectioning capabilities. 2D thumbnail images are stored with every product within ProductPoint. Double-clicking on the image allows one to view the part and assembly within ProductView and to perform easy to use viewing, markup, sectioning, measurement, and explosions of assemblies.

Operating ProductPoint from within Pro/ENGINEER and vice versa

Operating Pro/ENGINEER from ProductPoint is new and requires Pro/ENGINEER Wildfire 4. Right clicking on the product within ProductPoint allows opening the product within Pro/ENGINEER. Users can inspect the product structure history and selectively open the desired version.

When opening Pro/ENGINEER directly, the ProductPoint server appears like an additional file folder within Pro/ENGINEER. Part of the Pro/ENGINEER interoperability additions for Windchill ProductPoint allows the use of ProductPoint search from within Pro/ENGINEER that can search on any of Pro/ENGINEER designated attributes, such as description, file name, modification date, level, version number, etc.

Near the end of this paper we compare ProductPoint general functionality with other Windchill products.

In summary

ProductPoint is easy to get started with, is easy to maintain administratively, and extends the power of SharePoint while inheriting all its excellent characteristics for storing, sharing, and retrieving data. In addition, it is low cost, capitalizes on the extensive sharing and web oriented capabilities of SharePoint, and integrates well into existing Pro/ENGINEER installations. We highly recommend this product!

Recommendations

If you have a Pro/ENGINEER installation and do not have a Windchill PLM solution installed, we advise installing ProductPoint immediately.

The benefits to using ProductPoint will transport your organization into the modern era. The costs are moderate, the installation straightforward, and the administration of product data will provide huge benefits in your daily operation. Not only will it improve the management of your critical product data, but ProductPoint and SharePoint will also improve other related day-to-day operations. We all know that engineering information is just a piece of the information required to design and release products. Other related documents such as Word, Excel, PowerPoint, and pdf files – will all be able to now be easily managed, associated to relevant product data, revision controlled, AND accessible to your entire organization, locally and worldwide.

If all this seems too complicated for your organization, PTC also offers support and installation services to make it happen.

Exploring ProductPoint

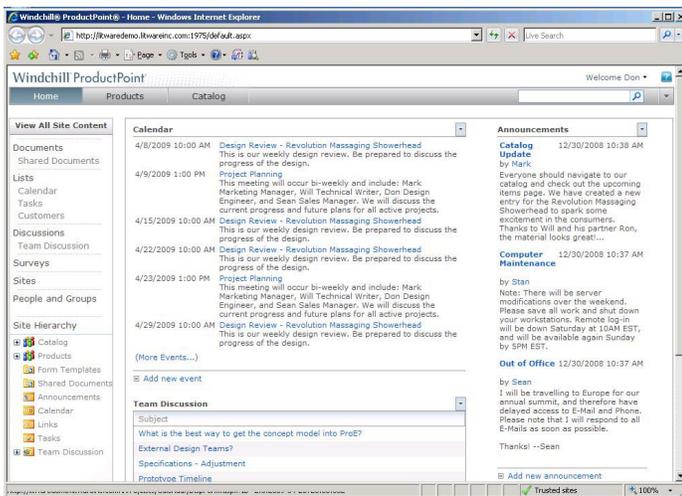
The remainder of this paper takes the reader on an exploration of Windchill ProductPoint. We progress from viewing the ProductPoint Windchill opening GUI and illustrate and discuss the capabilities of ProductPoint and show the interaction with Pro/ENGINEER.

PTC has architected the system to take significant advantage of the Microsoft SharePoint platform. In its initial implementation, Release 1, available now, ProductPoint is tightly integrated with Pro/ENGINEER. In a future release ProductPoint will be able to manage data from other CAD data software as well, including Autodesk Inventor and SolidWorks

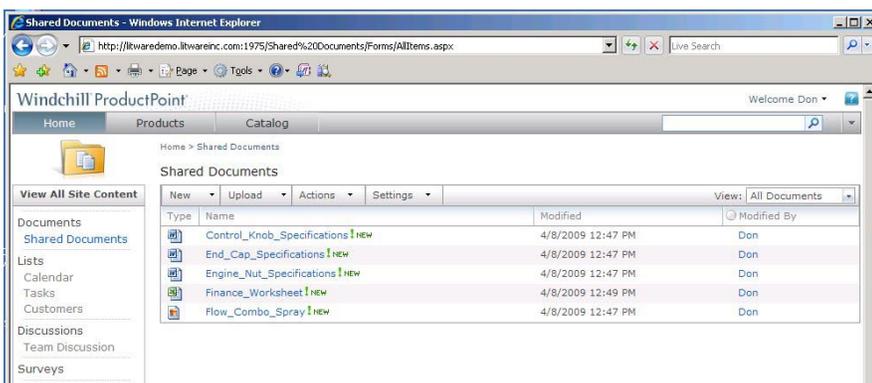
The current version of SharePoint is reportedly relatively easy to install, providing that Windows Server has already been installed. PTC states that ProductPoint could be installed completely within a few hours, provided only that SharePoint is already installed and running. Microsoft delivers SharePoint server with every Windows server, including the necessary SQL server. Customers needing installation and service support externally can go either to PTC (large customers are supported directly by PTC) or from resellers (small and medium sized customers). All size users and possibly engineering departments will find that they may also be dealing with a new category of companies – Microsoft third party resellers. For example, Microsoft Dynamics is a Microsoft offering for entry level ERP (enterprise resource planning). Third party resellers and partners from the Microsoft network can work with PTC resellers together to ensure customer success.

After ProductPoint installation, the designated administrator (selected at installation time) adds users, products and groups along with their permissions for data access. Users can then begin to populate the data, probably starting with existing Pro/ENGINEER data. Release 1 of ProductPoint requires users to open a product within Pro/ENGINEER and then save it within or drag it to ProductPoint. The next version promises a bulk load directly - using the folder structure directly bring in the data, say from a shared drive.

In production, after signing into ProductPoint using a browser, each user sees a home page customizable by each user using the widely accepted webparts technology to customize the screen. Typically displayed are a list of shared documents, a team calendar, pending tasks, team discussions, and a site hierarchy of products and catalogs. An administrator controls the people and group to which they are assigned. The “site hierarchy,” enables users to view and search product data. Also, importantly, along the top of the web page are two tabs allowing viewing of products and catalogs.



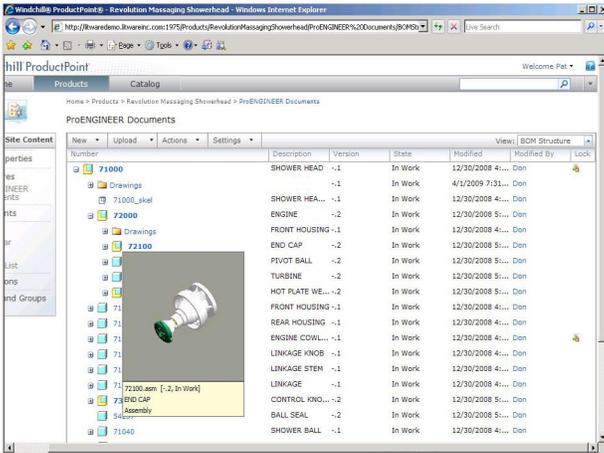
ProductPoint home web page



Dragging and dropping files from a local/network drive loads products into the shared documents folder

A Pro/ENGINEER user adds products into the shared documents folder by simply dragging and dropping the product into the proper folder. What an easy way to get started! Users can also organize this by subfolders, possibly consisting of product groupings, as desired. Note that this folder contains various types of documents – Word docs, an Excel spreadsheet, and our newly added product (Pro/ENGINEER) data. Once in ProductPoint, users no longer need to concern themselves about how the various files supporting Pro/ENGINEER are linked. The linkages are now maintained by ProductPoint. This is particularly important when reusing existing designs as a basis

Exploring Windchill ProductPoint

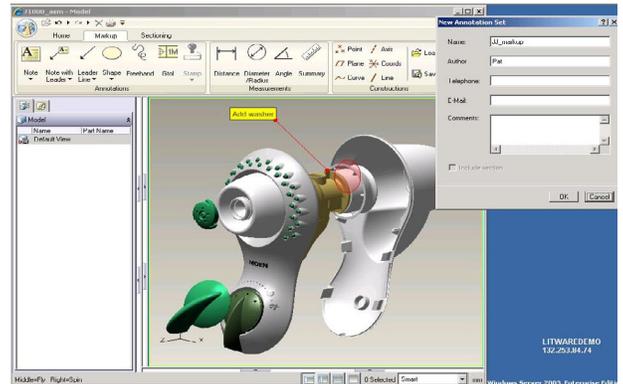


for new designs.

Either individual part or assembly information can be shown. In the example on the left, the thumbnail image displayed is a dynamic 3D image and is automatically generated. Clicking on the thumbnail activates ProductView, included at no extra cost with each license of ProductPoint. This detail product page shows relevant parameters and a dynamic thumbnail picture.

ProductView, opened directly from the thumbnail image, allows non-author type users the ability to easily view and comment on products. No training is needed. The menus are self-explanatory. Multiple annotations (or comments) are stored allowing reviews and changes to proceed faster. This image shows the ProductView Visualization Tool for view, markup, explode, measure, section and print capabilities. Similar capabilities exist for drawings.

The structure for a product assembly using an indented bill of materials along with a thumbnail image. This is what ProductPoint adds to SharePoint! Products being updated are automatically locked for modification. The revision level of each part and subassembly is shown as well as the state ("In Work" in this case).



Built-in ProductView provides easy to use view and markup

The screenshot shows an Excel spreadsheet titled 'RevolutionMessagingShowerhead_Parts_List_2009-04-08(1).xml'. The spreadsheet contains a parts list with the following columns: Type, Number, Description, Quantity, Version, State, and Modified.

Type	Number	Description	Quantity	Version	State	Modified
Part	54147	O-RING	1	-3	In Work	12/30/2008 5:15 PM
Part	54167	O-RING	1	-3	In Work	12/30/2008 5:08 PM
Part	54194-00	WASHER	1	-3	In Work	12/30/2008 5:14 PM
Part	54237	BALL SEAL	1	-2	In Work	12/30/2008 5:15 PM
Part	54243	U-CUP	1	-3	In Work	12/30/2008 5:14 PM
Part	54268	O-RING	2	-3	In Work	12/30/2008 5:08 PM
Part	54267	O-RING	1	-3	In Work	12/30/2008 5:13 PM
Part	54273	O-RING	1	-3	In Work	12/30/2008 5:14 PM
Part	54359	RETAINING WASHER	1	-3	In Work	12/30/2008 5:13 PM
Part	54379	WASHER	1	-3	In Work	12/30/2008 5:08 PM
Part	54692-00	STEM	1	-3	In Work	12/30/2008 5:08 PM
Part	71005	FRONT HOUSING	1	-1	In Work	12/30/2008 4:44 PM
Part	71010	REAR HOUSING	1	-1	In Work	12/30/2008 4:43 PM
Part	71015	ENGINE COWLING	1	-1	In Work	12/30/2008 4:43 PM
Part	71020	LINKAGE KNOB	1	-1	In Work	12/30/2008 4:43 PM
Part	71025	LINKAGE STEM	1	-1	In Work	12/30/2008 4:42 PM
Part	71030	LINKAGE	1	-1	In Work	12/30/2008 4:42 PM
Part	71040	SHOWER BALL	1	-1	In Work	12/30/2008 4:42 PM
Part	71045	FILTERING SCREEN	1	-1	In Work	12/30/2008 4:42 PM
Part	71050	SHOWER BALL WASHER	1	-1	In Work	12/30/2008 4:42 PM
Part	71055	ENGINE NUT	1	-1	In Work	12/30/2008 4:42 PM
Part	72000_sw	ENGINE SHRINK WRAP	1	-1	In Work	12/30/2008 4:41 PM

This Excel spreadsheet was generated along with its connected hyperlinks back to the ProductPoint data by choosing to export the BOM data.

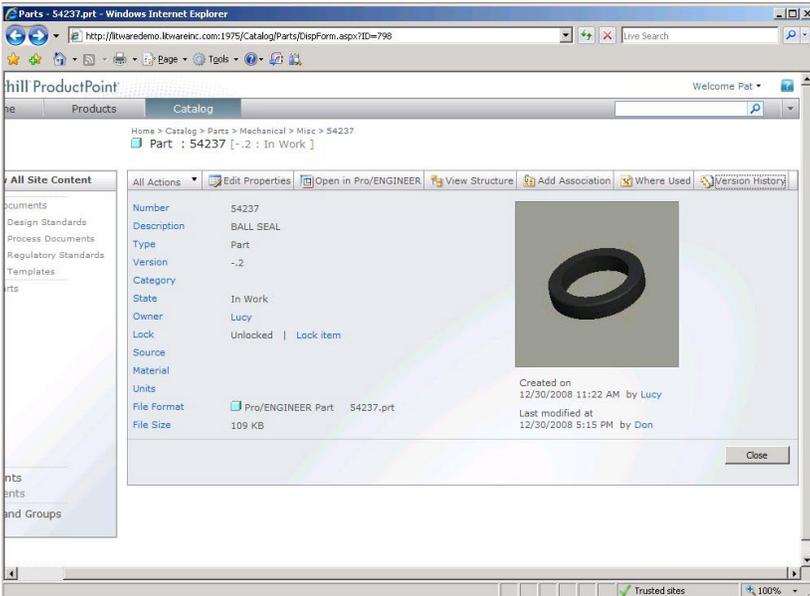
Communications of changes might be made to others via email.

Users can easily perform many actions on parts and assemblies, such as release, rename, save-as, move, and delete. Other actions include generating reports (like where used) and associating this product to other documents (very powerful). **This is where the system particularly outclasses any shared file system because it automatically maintains Pro/ENGINEER links among files.** Enormously useful is the ability to organize alerts (if the product changes) and to send a link to others to view the product, thus obviating any need to package and email large, unsecured data files!

Other reporting options include the possibility to create a parts list and automatically export it to Excel, and the creation of where-used or indented BOMs. Very impressive is the hyperlink connecting the Excel export back to ProductPoint. From within Excel, if you need more details on a part, double clicking on that part sends you back into ProductPoint. Family of parts are

Exploring Windchill ProductPoint

supported and designated in this view -- see the washer - the third item.



Part Detail Page

The details associated with a specific part are readily accessible. Properties can be edited, reports generated, version history interrogated, and the details can be opened within Pro/ENGINEER.

How ProductPoint compares to other PTC solutions

The following table shows the overall functionality of ProductPoint as compared to other PTC PLM solutions. This makes it readily apparent as to which functions a more traditional PLM system offers.

Key Capabilities	Windchill ProductPoint	Pro/INTRALINK 9.0	Windchill PDMLink 9.0
Web-based	X	X	X
File-based collaboration	X	X	X
Basic Pro/ENGINEER data management	X	X	X
Workspace frames		X	X
Integrate multiple changes into one Pro/ENGINEER file		X	X
Create, manage baselines		X	X
Personal workspace		X	X
MultiCAD file management	*		X
Technical document management			X
Engineering calculations management	X		X
Integral Windchill connectivity		X	X
CAD data exchange across Windchill systems	*	X	X
Part libraries	X		X
Product Development Reports	X	X	X
Embedded 3D visualization	X	X	X
Extensive security access controls		X	X
Configuration management, options/variants			X
Change management			X
Out-of-the-box workflow			X
Replication		X	X
Lifecycle management			X
Multi-platform support		X	X
Out-of-the-box SAP/Oracle ERP integration			X
ECAD data management			X
Software data management			X
Manufacturing process management			X
Project management/execution			X
Portfolio management			X
New product introduction stage/gate			X

*Windchill ProductPoint 2.0, due Mid 2009

About the Author

Raymond Kurland, president of TechniCom Group LLC and its principal consultant and editor, founded the firm in 1989. TechniCom Group specializes in analyzing MCAD and PLM systems and has been involved in reviewing and comparing such software since 1987. Ray frequently consults with both vendors and users. Ray has degrees in Engineering from Rutgers University and from NYU. His career included stints with Bell Telephone Laboratories, IBM, and Dassault Systemes. Ray can be reached at rayk@technicom.com. For more information about TechniCom Group and other software reviews please visit www.cad-portal.com. You can also keep in touch with Ray by following him on Twitter and periodically visiting his blog at <http://raykurland.wordpress.com>.

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