What Happens When You Connect the Tools in Your Value Stream?

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Organizations are dipping their toes into the water, as understanding of how manufacturing methodology applies to software development grows

BY DAVID RUBINSTEIN

Value stream has become a part of the application development lexicon, having first gained uptake as a manufacturing exercise and now being applied to the process of delivering value to customers through software.

It's been evaluated by analysts and increasingly written about in the industry press — including the SD Times Jan. 1 cover declaring this The Year of the Value Stream — so people are starting to wrap their heads around the concept of finding where bottlenecks in your process are, and finding which bit of work is just not productive and eliminating it.

But creating a value stream takes work. Although there are tools that can help organizations map their own value streams and gain visibility into their processes, there is no cookie-cutter approach to getting it right, and no silver-bullet tool to do the heavy lifting for you.

That being said, the rewards a well-structured value stream management program can provide include the frequent delivery of software that your customers like and use, and the elimination of waste from your workflow that can save money and time. It's a way to ensure you are always getting better at what you do.

"We've been using the terminology, but it's just now starting to take hold," said Lance Knight, senior vice president at ConnectALL, an Orasi company. "I can go in and solve my release process and improve my release time, but if I don't look at how long it takes for that idea to go all the way through, then I miss time to market. Time to market and visual transformations right now is very, very important."

As organizations should with any relatively new concept, we'll step back to the beginning, and start with the question: What exactly IS value stream management?

Eric Robertson, vice president of product management and strategy execution at CollabNet VersionOne, defines it this way: "Value stream management is an improvement strategy that links the needs of top management with the needs of the operations group. It is a combination of people, process and technology. It is mapping, measuring, visualizing, and then being able to understand from your planning, your epics, your stories, your work items, through these heterogeneous tools all

Gently down the value stream

the way through your enterprise software delivery lines, being able to understand that what you're delivering aligns with the business objectives, and you're being effective there."

For sure, there is still some misunderstanding. ConnectALL's Knight said, "Go to a conference and say, do you know what value stream is? I bet you most of them aren't really going to understand, because values stream management is, it's about all that Lean [manufacturing] stuff. There's something that I think is missing in aligning knowledge and people. Value stream mapping is a tool to identify waste. But software itself could be part of the tools you use to identify waste. There's no one tool that's going to map and remove all your waste. So, that's the reality, where people are taking point tools, and doing point things, but they're not taking a holistic value stream look, end to end."

On a manufacturing floor, where the production design and method of a particular widget doesn't change often, it's easier to understand the process and product flow. The challenge of bringing value streams to software development is that software is a constantly changing intangible. "You have to account for that when you're looking at value stream and software," Knight said.

CloudBees describes the benefits of value stream management in its ability to help organizations:

■ **Gain better visibility** by connecting teams, tools and applications across the entire software delivery process to track the flow of value.

■ **Find areas of waste** by identifying where the blockages and bottlenecks occur in order to reduce waste and increase efficiency.

■ **Measure and manage performance** by benchmarking and tracking DevOps performance based on industry standard indicators related to throughput (Deployment Frequency, Mean Lead Time) and stability (Mean Time To Recover, Change Failure Rate).

"What's really important when you look at it as a company, and why value stream should be implemented, is you need to handle two major forces. That is, time to market needs to be better than your competitors, bar none, and a good customer experience at the local branch of the bank isn't it anymore; it is all digital focused."

Alex Tacho, product manager at CloudBees, said, "The manufacturing process is pretty linear, with clear dependencies — steps that have to be completed before moving that product

or widget upstream to the next phase. This is where the value stream concept in software development is interesting to define, since the steps to produce a feature or even fix a bug may not have clear dependencies. … However, like manufacturing, software delivery and continuous delivery is made up of linear processes, too, with dependencies that must be passed before software is deployed to production. What's really amazing, when you think about it, is that we haven't been as organized around value streams and automation as manufacturing has been for decades, now — maybe as much as a century — value streams really are a concept that also applies to software. Identifying waste in the process and streamlining the flow of software through to production is all good."

Where to begin?

So you've done your evaluation, decided creating value streams will greatly benefit your company, and you're ready to go. But where do you start? As always, opinions vary.

Some say it is important to define what you want to accomplish. Others say a value stream begins at the ideation stage, when products are conceived. Still others say the first step is to create a value stream map, which looks at all

Why now?

A few years ago, when the concept of value stream was first being discussed in development organizations, the response often was a quizzical look. But the conversation was about a way to describe end-to-end development and planning all the way — what CollabNet's Eric Robertson calls "that concept to cash aspect."

"In the Lean/Agile type of world, folks were utilizing methodologies like Agile, Kanban, Scrum, and so they started applying these Lean concepts and techniques around development, and that offshooted into DevOps, because delivery had to be more agile to catch up to development and accommodate that methodology," Robertson said. "But it was still very technical-centric. It was about your DevOps tool chains, and we saw customers that invested in a lot of the Agile and DevOps tools — CI/CD — and they were about to automate things around workflows. But it was still very disconnected; they weren't able to track that work in progress, all the activities and touch points. They could do it technically, so they can can tell you, 'We delivered five releases this week,' but really the business was saying, 'What does that really mean to us? What does that mean to my initiatives and objectives that I'm trying to drive?' My objective

is enhanced digital footprint, one of my initiatives is support for credit-card processing, and in that last release, what capabilities did we deliver to align with that? That was the gap. They couldn't really master that question. They could tell you all the technical aspects around it, but really around how this matches back up to the business, and the value you're delivering, was that missing gap."

Matching up development to company objectives and initiatives has been difficult to do. Plutora's chief marketing officer Bob Davis said, "We get the value of Agile and DevOps, but look what's happened. We have distributed organizations, it's difficult to collaborate, to sync up across multiple methodologies. I've got a mobile banking application, and I've got a new feature coming out that depends on something going on in a more mainframe-oriented, waterfall-oriented methodology, and how do I make sure those get synced up and the dependencies are met, and things are tested correctly with the proper builds and the proper features? All that stuff is what we're seeing now."

And that's what value stream management is trying to provide. ∎

Davis

—David Rubinstein

assets and properties to help organizations see where bottlenecks and waste are in their processes. Yet all agree it is a journey of continuous improvement that never ends.

Carmen DeArdo, senior VSM strategist at Tasktop, said value stream creation and management starts in the ideate space. He explained, "We set up teams and we say, 'How do things start? Let's just talk about features and defects.' Features don't just start in Jira, or whatever your Agile management tool of choice is to understand really the wait states, because almost all of flow time is around wait states, and chances are it's not in creative release. It's probably in connecting ideate to create, or connecting operate to create, but almost everyone in the industry is doubling down on creative release, which is fine, you have to start somewhere. But it's just the beginning of the journey and you have to continue that journey."

Once your organization has bought in, it is important to first understand what your current operation looks like, and then to map that, to make your processes as visible as possible.

"The first step in value stream mapping is really about understanding your current state, and then really start looking at removing waste, bottlenecks, and understanding the activities that are being performed," CollabNet VersionOne's Robertson said. "And then, how can I streamline that, because you can't improve what you don't know. It's really about understanding that current state, that process, that flow of value, understanding how it's being delivered, and then looking at how that can be optimized."

He said it is not uncommon for organizations to lack an understanding of all the activities that are involved in how products and services are created and delivered. "There's a big disconnect there," Robertson said. "Understanding state, your process, how people interact with that, and the tooling, and then going from there."

Jeff Keyes, director of product marketing at Plutora, agreed that value stream mapping is the place to start, to

Project to Product... What does that even mean??

In value stream management, a change in perspective is required. Proponents of the methodology say you have to take a product view, rather than a project view, of the work you're doing.

Isn't a project merely a part of a product? It is, but there is so much more to a software product than the code.

Tasktop founder and CEO Mik Kersten titled his book on value stream management 'Project to Product.' As Tasktop's senior strategist Carmen DeArdo explained: "I was at Bell Labs before I went to Nationwide Insurance. We were in a product model but I didn't really know it. There are characteristics of a model of a product that I think lack in terms of a project. Projects are temporal, projects come and go. Products are things that you live with. Products are the things that continue to sustain you.

"When you're looking at it from a product perspective, you're looking at it across its entire life cycle and cost of ownership, and you're looking at all aspects of work. Projects almost always focus on features. Project managers are focused on features. If it's defects, it's defects that are affecting the scope of the project. If it's risk, it's risk that is affecting the scope of the project. When you're dealing with a product, you're talking about everything that's affecting that. If you have a vulnerability in a Struts library that may have nothing to do with a specific feature, you're going to consider that as part of your product because it's one of the systems that's supporting your product. You don't do that in a project model. You don't look at flow distribution, you don't have conversations around how much do you want to invest in features, defects and risk, and you almost never talk about debt, because debt is not something that's going to help you now; it's an investment in the future. It makes the next thing go faster. None of those things are in play in a project world."

DeArdo also pointed out that the amount of churn you're doing internally should be proportional to how much your company is changing. "The world doesn't end of December 31st and recreate itself on January 1st," he said. "I used to say, if you look at a company on January 1st, they're selling pretty much the same thing they sold on December 31st. But if you look at what happened internally, they probably have a whole new set of projects, a whole new set of project teams, a whole new set of activities... what benefit are you getting from that? What benefit are you getting from doing all that reorganization? Your company may have some strategic changes; you may be launching a new line. BMW may be coming up with a new car. But fundamentally most of your products aren't changing. That gets completely lost in this whole translation. I just think it's a fundamentally different way of how work gets done and managed." ■

—David Rubinstein

gain that end-to-end visibility into the operation. "The first thing that you want to do is to map your value stream. In whatever methodology you want to talk, you have to understand what you're starting with, so that you can understand what needs to be improved and where. It might make the most sense to automate; that might be your very next step, because you can improve quality and so forth. It might make more sense to figure out a better way of handling governance, because that's where your bottleneck is. It might

make more sense to become more product-oriented versus project-oriented. All those things and those discoveries will come out of the process of evaluating the value stream as a system.

"The whole point is, do value stream first. Map your value stream so you at least understand what you're doing. If you do Agile, what you're saying is, great, let me break down my features into smaller buckets. That's good. But it may not be where your constraints are. If you're doing DevOps, you're saying

Losing command and control...and living with it!

There's a saying that goes, "Developers don't want to miss the boat, and operations don't want to sink the ship."

But for organizations to create value streams to observe their operations and eliminate waste while driving efficiencies, they might have to yield some control.

ConnectALL's Lance Knight recalled his time as a Novell network administrator, who required requests in triplicate — from the requester, his boss and HIS boss — before granting access to files. "That was a whole other time of IT command and control that kind of took over for a while, and you've got to get rid of that from an IT operations perspective, and think about how you're trying to support the business, not control it as much.

"IT thinks of themselves as process enforcers, rather than the enablers," he continued. "If you didn't groom the backlog right, we're not doing anything with it. That kind of stuff. I remember being that guy, that IT enforcer. You guys are spending the wrong time on what you're supposed to do on this PC out on the shop floor, so I'm going to turn it off at your lunch hour from now on. Right? An enforcer. They're used to having that power. They have the passwords, security. 'I have the admin passwords for the HR system, I know what all you guys make, I am special!' "

Plutora's chief marketing officer Bob Davis said, "As you go from command and control, old-school process to the newfangled world of Agile and smaller bites released more frequently, you have to be able to collaborate. And one of the things developers like to do less of is collaborate. If the system can provide the KPIs, if the system can allow them to collaborate silently, in effect, by alerting dependent systems, dependent development processes, etc., automatically, because the system is plugged in and understands the relationships and notifies or alerts the relevant parties ... anything that's happening, to the extent that can be automated and served up into a system, the better you are.

"I think that that's the promise," Davis continued, "and as we go down the future and say OK, what happens next, you start to get better machine learning and the processes get even more intelligent relative to how to weave in security, how to weave in

compliance, in a more automated kind of parallel process way, without having that 'oh shit' moment where you go, 'I didnt do that.' Any of those things that are made possible are real advances in the world of software development, and that's what value stream promises."

The key question is, how do you bridge the gap from command and control and the highly autonomous, self-led teams? In other words, 'How do you get to Amazon?'

According to Plutora's Jeff Keyes, the answer is value stream management. "You have to go through the process of understanding, here's our value stream from beginning to end. Then you start to break that down, you have to start integrating your tools and bringing them together. Third, you've got to add a layer of orchestration across it so you can incorporate these things, because that reduces your time to delivery. Fourth, as you're measuring the time that things are going, now that you're orchestrating it, you can start to see a path of, 'well, these checks, I can automate these, because that will improve my delivery performance,' and it brings the team in so that they're bought in. Do you still have command and control? Not in the same fashion, but they're acting as coaches in compliance and ensuring that the right things happen, even in these automated pipelines. What about audit? How do you make that happen? Well because it's all happening there, and all that data is rolling back into a value stream management platform, audit is easy. You can verify that the right things happen."

Tasktop's Carmen DeArdo said control gets baked into our objectives and our incentives. "I work with people whose complete incentive was around stability of production. They had no skin in the game to go faster but you'd think they could think a little more broadly about, OK, well, we'll just never release another feature. We won't be in business very long, but we'll protect production, maybe. That's what led to DevOps. Everybody has to have skin in the game to be aligned with goals. It's not just deliver business value, but protect it and improve it. The product model is better at protecting because it elevates risk to be a first-class citizen rather than everything being subservient to features, and it's the same with process." ∎

—*David Rubinstein*

let me automate as fast as possible from check-in on to deployment. That's great, but that may not be where your bottlenecks are."

CloudBees' Tacho said it is important for organizations to first define what they want to accomplish — whether that's improving quality, delivering software faster, working more efficiently, or some other goal — what some are calling the "true north" of the

organization. After defining the goal, he suggests finding the start and end points, and defining what it is you want to measure and improve.

Next, he said, you must assemble the team of all the roles that are involved in delivering a new feature: developers, UX, operations, security, testers and so forth. "The important thing is the people making up the team should be relevant to the end goal and empowered to act on the steps in the value stream to move the

value (product, feature) to the next phase and ultimately to completion," Tacho said. "But they should also be able to make changes to the process in their domain to make it more efficient or to fill a gap — which is the whole idea of this exercise in the first place."

Once the correct team is assembled, Tacho said it should walk through the flow as it exists today, by analyzing the steps and documenting them in

How does your solution help organizations on their value stream journey?

Alex Tacho
Director of product management, CloudBees
CloudBees DevOptics solves the challenges of measuring and managing DevOps results by being the only solution purpose-built to provide visibility into collaborative delivery and DevOps performance. CloudBees DevOptics lets you map and visualize end-to-end software value streams with actionable insights to measure, manage and optimize software delivery across teams, improve DevOps performance and drive more value through faster business innovation. You get real-time value stream insights that automatically collects and analyzes up-to-the-minute data across value streams, allowing you to break down silos, detect patterns and identify bottlenecks. CloudBees DevOptics provides that single view of the delivery process with key DevOps performance metrics including: Deployment Frequency (DF), Mean Lead Time (MLT), Mean Time To Recover (MTTR) and Change Failure Rate (CFR).

Eric Robertson
Vice president of product management and strategy execution, CollabNet VersionOne
The Enterprise Value Stream Management solution from CollabNet VersionOne provides a holistic approach to application development and delivery by applying the principals of Agile-plus-DevOps to the entire product delivery pipeline. As a result, organizations achieve:
- Process and flow improvements
- Increased management visibility
- Compatible data and measurements across tools
- Increased collaboration and knowledge sharing
- Decreased deployment delays, inefficiencies and errors
- Alignment with business strategy

These benefits apply to all stakeholders across the enterprise — from portfolio to program, release and team.

The practice of Enterprise Value Stream Management has had a significant impact on some of the world's largest organizations and with the help of CollabNet VersionOne, brands are able to transform the trajectory of their business all by aligning software development and delivery with business objectives.

Lance Knight
Senior vice president, general manager, ConnectALL
ConnectALL's Value Stream Integration solution helps enterprises of all sizes to connect, visualize, and measure end-to-end software delivery value streams. This holistic approach ensures greater velocity and predictability.

ConnectALL wants companies to discover the benefits of value stream management with the understanding of how business value flows across an organization — connecting people, processes, and tools. We want to help companies understand the importance of integration in optimizing the way software is delivered.

ConnectALL will help companies with a consultancy around value stream design — taking an end-to-end approach in value stream management from ideation to implementation to make the improvements to gain velocity and make processes more predictable. ConnectALL with its integration platform will span everything that production teams are supposed to do.

The ConnectALL Value Stream Integration Platform integrates applications from the world's leading vendors including Atlassian, Micro Focus, Microsoft, IBM, Salesforce, BMC, CA, Perforce, and more. Your teams can continue to use the best tools for the job while ConnectALL optimizes your Value Stream and seamlessly integrates the data between teams and applications.

Jeff Keyes
Director of product marketing, Plutora
"You can't manage what you don't measure." Plutora creates a baseline of the current state of value streams by pulling data from existing toolchains providing key metrics highlighting constraints for every product team across the portfolio regardless of their level of Agile and DevOps maturity. Normalizing the data allows for unified visibility across diverse methodologies, technologies and toolsets.

Plutora then enables teams to create new "what-if scenarios" of development and delivery integrating those practices into the Plutora Platform's management and governance capabilities. End-to-end release pipelines with associated scope are defined with phases of delivery and criteria gates and are integrated back into each development team's tools. Environment requests and provisioning are centralized using Plutora's environment management ensuring complete control and efficiency of pre-production IT environments. Plutora deployment management mixes existing automation with planning, approval, and execution control over cutover activities.

The visibility and transparency created by Plutora creates collaboration and efficiencies between teams resulting in an enterprise system of insight measuring outcomes of each effort. It aggregates release, quality, and deployment data to transform the way application delivery teams solve problems, make decisions, and measure results. Data analytics and visualization turn structured data into rich, contextual insights.
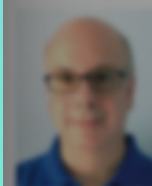
Carmen DeArdo
Senior Value Stream Management strategist, Tasktop
In the Age of Digital Disruption, enterprises are quickly shifting to accelerate the delivery of business value. This shift requires that IT leaders be able to apply systems thinking to answer the question, "Where's the bottleneck in my software value stream?"

The first step to move to a value stream model is having end-to-end visibility across the flow of work performed (features, defects, risks and debt). Tasktop Integration Hub automates and visu-

test cases to ensure development stays aligned to customer needs and compliance throughout the process. With integrations to task management and test automation solutions, development teams can centralize their process, mitigate risk, and have unparalleled visibility into what they're building and why.

■ **Micro Focus:** Micro Focus helps organizations run and transform their business through four core areas of digital transformation: Enterprise DevOps, Hybrid IT Management, Predictive Analytics and Security, Risk and Governance. Driven by customer-centric innovation, our software provides the critical tools they need to build, operate, secure, and analyze the enterprise. By design, these tools bridge the gap between existing and emerging technologies — enabling faster innovation, with less risk, in the race to digital transformation.

■ **Panaya:** Value Stream Management is about linking economic value to technical outcomes. Though not unique to the Enterprise, large organizations have specific challenges and needs: siloed teams, waterfall or hybrid operational modes, as well as many non-technical stakeholders. Panaya Release Dynamix links IT and business teams with an intuitive tool that strategically aligns demand streams with the overall business strategy.

■ **Targetprocess:** To connect portfolio, products and teams, Targetprocess offers a visual platform to help you adopt and scale Agile across your enterprise. Use SAFe, LeSS or implement your own framework to achieve business agility and see the value flow through the entire organization.

■ **XebiaLabs:** The XebiaLabs DevOps Platform provides the backbone for comprehensive release orchestration, managing, controlling, and offering full visibility into the end-to-end DevOps pipeline. It allows both business and technical teams to easily spot bottlenecks and analyze inefficiencies in their processes, so they can optimize the entire software delivery value stream. ■

alizes the flow of work items across the various specialized tools used by different teams and departments to deliver software.

The next step is having analytics that allow companies to understand where work is flowing and where it's slowing down across a value stream. Tasktop helps enterprises answer this question by providing a comprehensive set of Flow Metrics based on the Flow Framework created by Dr. Mik Kersten.

The Flow Metrics capture the elements of velocity, time, load, distribution and efficiency for all the work done in a product value stream, by utilizing data from the work item artifacts in the enterprise's delivery toolchain. These metrics, when combined with the product business results (value, cost, quality, happiness) provide a comprehensive view, which can be used by business and IT leaders as part of their continuous improvement process to identify bottlenecks, allocate investment, and determine actions to optimize the flow of business value.

Moving to a product value stream approach is a journey. Tasktop supports companies on this journey with the ability to start with a single value stream and develop a model that can then be applied and scaled across the enterprise in a sustainable way. ■

and gaining knowledge from that visibility. "Too often, the CIO, will go, 'The business has asked for this. When can you give it me?'" Knight explained. "And the next thing you know, four years down the road, they say, 'You promised me this a year and half ago.' And that happens a lot in IT. If we frame this about being more predictable, increasing velocity and actually knowing when you put something into the system you're going to get it, that is the message everyone will align to."

Yet companies always want to measure themselves against competitors in their industry, to see where they fall on the path. This is especially difficult in value stream management, because each organization's "true north" and values are different. So how can an organization tell if it's being successful in implementing and utilizing a value stream?

CloudBees' Tacho said it doesn't matter how organizations define value. "If that value is driving revenue, solves customer or user needs, creates efficiencies or saves on costs and has a number of process steps that can be visualized, then it can be modeled into a value stream. Benchmarks available as a baseline to start measuring performance against and where to improve will be driven based on the industry you are in. But from a software delivery and DevOps perspective, we can tap into several years of research by the DevOps Research and Assessment (DORA) group that shows statistical data on how organizations have been progressing towards DevOps performance for software delivery."

According to CollabNet VersionOne's Robertson, "The measurement component is where you differentiate from value stream mapping and head into management. When you start to understand metrics, when you start measuring material movement and flows of information, and start looking at metrics like duration, delay against activities … these are very key metrics that are utilized to be able to understand and very quickly identify value vs. non value-add activities — waste — in terms of delay, including handoffs to a point, and all those kinds of things. So having a clear understanding and a good foundation around these measurements and KPIs, that is very reusable, add that's where a lot of the folks are struggling."

For organizations on a value stream journey, it is important to know that it is a winding path that crosses other methodology streams along the way. As Robertson explained, "It is evolving. But you're not going to see a value stream transformation. You'll see a DevOps transformation, you'll see an Agile transformation, you'll see business agility transformation. You won't see a value stream initiative on the books. But what they'll learn very quickly is you need value streams in order to be able to enable that business agility, to enable that successful DevOps transformation, to enable that scaling Agile initiative that you're undertaking." ■

NEWS WATCH

Applitools released Ultrafast Visual Grid for continuous UI QA

Visual testing solution provider Applitools released Ultrafast Visual Grid, software for managing an application's functional and visual quality.

Before Applitools, UI testing was done manually and serially, as pages were examined and changes compared one page at a time. The company said Visual Grid farms out screenshot jobs to a grid of browsers in the cloud to generate images of web pages on all browser types, viewport sizes and emulated devices the tester requests.

Further, Visual Grid takes advantage of the AI functionality built into the company's Applitools Eyes visual testing and monitoring tool to validate the elements on those screens, doing away with the need to maintain what the

company called brittle test code and bloated functional test scripts.

Harness joins vendor-neutral Continuous Delivery Foundation

Continuous delivery-as-a-service provider Harness joined the Linux Foundation's Continuous Delivery Foundation, a position the company says it

will use to foster collaboration and tech evangelism.

The CDF was founded in March with the goal of providing a vendor-neutral space for open-source CI/CD projects and to promote collaboration between developers, end users, and vendors. Harness, in particular, provides a DevOps-focused continuous delivery platform with automation and machine learning implementations.

Google previews new plug-in for IDEs to ease cloud native app development

Google released previews of a set of new plug-ins for integrated development environments (IDEs) that will generate cloud-native code for deployment into Kubernetes-based clusters.

The Cloud Code plug-ins are available for any IDE that supports IntelliJ and for Microsoft's Visual Studio Code. Developers who typically use IDEs on local client devices may lack the experience of building cloud-native code, a consideration Cloud Code addresses, according to Google.

Using Cloud Build, a developer can run a pull request or commit to automatically build, test and deploy the application. Google also launched a custom worker feature that adds a CICD function for the company's new Anthos hybrid cloud software.

Visual Studio 2019 improves project, code management

Visual Studio 2019 is now generally available for Windows and Mac. Microsoft says that updates to the IDE improve on source control, starting up new projects, code navigation, debugging and AI-assisted code completion.

Also incorporated into Visual Studio 2019 is Visual Studio Live Share, a real-time collaboration environment. The tool's feature set is based on community feedback and includes a read-only mode, support for C++ and Python and guest debugging sessions.

Updates that are new specifically to the MacOS version of the IDE include a new C# editor and a port of the Unity tools available on Windows previously.

Apple releases Swift 5 with library and language changes

Version 5 of Apple's Swift introduced improvements to application size and performance and a number of language and library changes based on suggestions from

People on the move

■ **Andrew Fuqua** has joined ConnectALL as its new VP of Products. The company has stated that this appointment is a reflection of its commitment to strengthening its value stream integration offerings. Andrew was previously an Enterprise Transformation Consultant at LeadingAgile and has over 30 years of experience in management, product management, and development.

Here's our news about Andrew Fuqua, VP of Products.

Data Strategy Officer. Formerly the VP of Research at Gartner, Cindi has 17 years of experience as an analyst for topics including visual data discovery, cloud BI, and mobile BI. At ThoughtSpot, Cindi will focus on helping customers understand how to leverage analytics and AI, and will continue working on data and AI for good, women in tech, and AI ethics.

■ **Dan Streetman** has been appointed as TIBCO's new CEO. The company has stated that this appointment will ensure the company will continue to expand the reach and scale of its Connected Intelligence Cloud to deliver game-changing innovation to the market. Dan was previously the executive VP of worldwide sales and marketing at BMC Software.

■ SecureLink has welcomed **Tony Howlett** as chief information security officer. The company stated that this appointment is part of an overall plan to accelerate its presence in the cybersecurity space and to deepen connections with customers, particularly those in highly regulated industries. Tony previously worked as chief technology security and privacy officer at Codero.