

Thought Leadership Spotlight: Larry Lang, PLUMgrid



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“Senior executives understand that information security is a threat to their company and to them personally. Yet they struggle to understand the threat and how to respond to it. Meanwhile any urge to slow down or lock down is countered by the competitive mandate to provide customers more access.”

Steven Taylor: Thought Leader Spotlights are designed to share insight from the most influential leaders in our industry – both well-known and behind-the-scenes individuals. Whether or not a specific company, product, or service is mentioned is rather inconsequential.

There’s a huge difference between facts (or data), knowledge, and wisdom. These leaders share knowledge at a minimum, plus a lot of wisdom.

Larry, we first met almost twenty-five years ago when you were starting at Cisco. This was in the midst of the “packet wars” between frame relay, SMDS, and ATM. Over the years, we have had the opportunity to exchange ideas, though not as often as would have been fun.

During this time, you spent almost twenty years at Cisco, rising to leadership positions where your innovative spirit contributed significantly both to Cisco’s success and technical advances in our industry.

With this background in mind, my first question is what do you see as the most important challenge and/or disruptive technology that the IT community is facing?

Larry Lang: Security is the obvious answer, but let's delve deeper.

The Target breach was a milestone, not just because of its magnitude, but also because of who was held accountable. Previously it was sufficient to fire the CIO, but at Target the CEO was also fired (poor sales in Canada also hurt) and the board narrowly survived a no-confidence vote by shareholders. So now senior executives understand that information security is a threat to their company and to them personally. Yet they struggle to understand the threat and how to respond to it.

Meanwhile any urge to slow down or lock down is countered by the competitive mandate to provide customers more access. How can a retailer compete with Amazon without providing online interaction? How can a taxi company compete with Uber relying only on street-flagged fares? How can a bank compete with PayPal insisting on paper transactions in physical branches?

These conflicting realities are prompting new design approaches, particularly in data centers. Before the belief was that installing firewalls assured the inside of your data center was pristine. Now the realization is that this makes as much sense as checking license plates at the crossings into Manhattan and assuming you've eliminated crime in the city.

Your data center is compromised, right now. Make sure your applications behave accordingly.

Steven Taylor: How do you see these challenges being addressed, both in general and specifically?

Larry Lang: One way to address these challenges is to borrow techniques from public cloud providers. Each of their users or tenants must be isolated from their neighbors. In practice, this isolation comes from creating a private environment (Amazon calls these virtual private clouds) with private IP addresses (defined in RFC 1918). Any access to the tenant is via floating public IP addresses with translation and deliberate thought about what access policies to allow. Continuing the earlier analogy with Manhattan, this approach is like securing the doors of each business or residence.

As enterprises build themselves private clouds, predominantly with the OpenStack platform, each application will be isolated in a similar private environment. Neutron is the OpenStack API to automate the creation of such environments, and companies like PLUMgrid provide software that implements Neutron. Naturally, we think our software is the best

implementation, but we'll save that discussion for another time and place.

A consequence of this approach is that networking happens at two distinct levels, a virtual level created in software and visible only to the applications, and a physical level visible to traditional networking equipment. (The parallel with virtual machines and physical servers should be clear.) Every packet routed through the physical infrastructure encapsulates another packet meaningful to the applications. Since the inner packet can be encrypted, the information exchange is opaque to the outside world. (In a comparable trend, more and more external web access is now encrypted in HTTPS.)

The SBC session layer is a mission-critical application that benefits from the capabilities that NaaS IQ provides.

Steven Taylor: What has surprised you most in the evolution of IT over the past couple of decades?

Larry Lang: The pervasive impact of mobile access. Aside from the highly visible trend of people constantly peering and poking at their devices, every aspect of IT has been inverted by the implications of mobile devices surpassing desktop screens for attention.

As just one example, companies at first just redesigned traditional web sites to provide access to mobile browsers. But this awkward experience gave way to custom-build mobile apps. This in turn prompted the re-engineering of web pages into HTML5 agents, with rendering handled in the local browser and backend calls to the server via the same API calls used by the mobile apps. These calls then reached servers that increasingly communicated with each other via more API calls. This web services architecture lends itself to cloud scaling techniques, which in turn motivates the redesign of the data center, as described above.

When the first iPhone was introduced eight years ago, who would have anticipated such far-reaching impacts?

Steven Taylor: What technology, product, or service was ignored and should have gained wide acceptance, and what technology, product, or service gained wide acceptance and should have been ignored?

Larry Lang: Two answers from a networking point of view...

Bellcore (later Telcordia, now part of Ericsson) developed a wide-area technology called Switched Multimegabit Data Service (SMDS), based on the IEEE 802.6 standard. If more broadly adopted, it might have helped telephone companies provide a better foundation for modern data communications. Then again, I worked on SMDS as part of a great team of colleagues whom I respected and enjoyed, so perhaps I'm biased.

In contrast, another telephone company invention called Broadband ISDN a.k.a. ATM took the world by storm for several years before heading for the bit-bucket of history. In a binary world, whoever thought tiny packets exactly 53 bytes long were a good idea?

Steven Taylor: What profession other than IT would you like to attempt, and what other profession would you not like to do?

Larry Lang: I enjoy playing music, so perhaps composing or performing. But I recently played the harmonica at a company meeting, and my colleagues urged me to keep my day job. So maybe not.

I would not like to be the Greek finance minister.

Steven Taylor: What type of equipment that we currently deploy is most likely to end up in a museum in ten years, and what type of equipment that we currently deploy is most likely to hand around (or has already been around) much too long?

Larry Lang: I recently toured the Computer History Museum in Mountain View, California, and its many interesting exhibits included a venerable Cisco AGS, the first router I ever worked with. (Then we were upgrading the Internet backbone to 45 Mbps; now the connection to my house is faster than that.) Somewhat disorienting to find a once-familiar tool on display as a historical artifact, but it suggests that ending up in a museum isn't so terrible.

Magnetic disk drives are a technology that have outlived their welcome and can't retire fast enough, given how much time and energy they waste. As flash memory replaces them everywhere, I look forward to the day when spinning metal dust seems as implausible as punch cards or paper tape as a way to store important information. [Full disclosure: As a board member of Violin Memory, I anticipate this transition with particular eagerness.]

Steven Taylor: To what do you attribute your success?

Larry Lang: My parents, who always supported my education and curiosity about technology. It must have tried their patience to come home and find I'd disassembled all our telephones.

My colleagues, who have included some amazingly talented and interesting people. History will marvel at what it must have been like during the time of Moore's Law and the birth of the Internet, and I'm enjoying the journey with some great fellow travelers.

Good fortune, because anybody who doesn't acknowledge that is kidding themselves.

Steven Taylor: What is your most significant challenge moving forward?

Larry Lang: The same challenge as anyone else working with information technology: Tomorrow I'll encounter something brand new that will change how I think about what we're building and how we need to serve our customers. Then again, that challenge is what makes this such a compelling way to spend your time.

Steven Taylor: Describe yourself in three words.

Larry Lang: ~~Difficult to manage, not very coordinated, corny joke teller~~
But seriously, learning, teaching, growing

To continue this discussion with Larry, Steven, and your professional colleagues, check out the on-line version at Webtorials.

About Larry Lang

Larry describes himself as an innovative senior business leader with extensive product development experience in start-up, early stage, and Fortune 100 environments.

Extensive experience in product development, marketing and sales, with engineering background. Proven ability to raise capital, grow revenues, and build excellent teams. Strong communication skills; adept at translating highly technical information into clear value propositions, and connecting engineering with sales to roll out successful new products, gain market share and achieve multi-million dollar revenues. Track record with diverse customer types including small to mid-sized businesses, large enterprises, and service providers, as well as building partnerships through global business development.

He is currently President and CEO at PLUMgrid Inc.

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Editorial/Analyst
Division**
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