

Lean Healthcare Information Services: Oh, Say, Can You See?

By Drex DeFord

Abstract

Lean methodology can help make healthcare information services more efficient by uncovering areas of waste. However, when it comes to how data or transactions flow through IT systems, many organizations have significant blind spots. In this paper, longtime healthcare leader Drex DeFord shares his own experience using the ExtraHop platform to gain holistic IT visibility. He also interviews other ExtraHop customers in healthcare to get their perspective, including IT leaders from Steward Health Care System, Lockheed Federal Health, and Sutter Health.



About Drex DeFord

Drex is an independent consultant with a long career as a healthcare executive, including his experience as Co-Founder and CEO of Next Wave Connect; EVP and CIO at Steward Healthcare in Boston; SVP and CIO at Seattle Children's Health System and Research Institute; and Corporate VP and CIO at Scripps Health in San Diego. Prior to that, he spent 20 years in the US Air Force, where he served as a regional CIO, a medical center CIO, and Chief Technology Officer for the USAF Health System's World-Wide Operations.

Besides his work as a healthcare executive, he's spent significant time leading some of healthcare's top associations – he's served on the Healthcare Information and Management Systems Society (HIMSS) National Board of Directors, and is the Past-Chair of both College of Healthcare Information Management Executives (CHIME) and the CHIME Foundation. He's also held state HIMSS leadership positions in both Virginia and Washington.

Drex has a couple of Masters degrees (Master of Science in Health Informatics from University of Alabama-Birmingham; Master of Public Administration, University of Oklahoma), he's a Fellow in all the right organizations (HIMSS, CHIME, and ACHE), and he's also a Certified Healthcare Chief Information Officer (CHCIO).

Drex now spends his time bringing together trusted health systems, payers, associations, vendors, and investors to solve healthcare's toughest problems as President of his own healthcare practice, drexio digital health (<http://www.drex.io>).

The Importance of Seeing for Lean Methodology

The Lean concept of “learning to see” was a difficult one for me early on in my Toyota Production Systems journey.

I thought I was “seeing” everything just fine in the beginning. I was pretty good at understanding workflow, finding and fixing flaws, and leading people and process improvement.

But my sensei continued to pick at me on the topic. “You look, but you don’t really see.”

In my head, I thought, “What the hell does that mean?”

During a trip to Japan, Sensei took away my phone and my laptop. He handed me a pad of paper, and two number-two pencils. I thought I was about to take the SAT.

But instead, as we stood in the middle of the Yamaha piano factor, he pointed at an assembly line worker.

“Draw.”

So I looked at the line, and the worker, and I started to sketch. Now, just so we’re clear, I’m no artist. Not even close. But as I drew what I was watching, I began to understand. It was the detail of the work that I was capturing in the drawing: The movement of the worker. The way he handled the trade tools. And the smoothness of all the work. No interruptions, no search; just complete focus on the art of his effort, with all his tools exactly when and where he needed them—always the right place, always the right time.

I sketched throughout the rest of the trip. In the harmonica factory. The mattress-making factory. Toyota’s final assembly plant.

As it turned out, taking time to “see,” was key to the operation. If you can’t see, you can’t really understand how to fix or improve processes.

Unless you can “see” all the work, and how it all fits together, a well-intended “fix” (done without the ability to “see”) can have an endless cascade of unanticipated consequences.

Since that trip, I’ve continued on my Lean journey, learning to see (better) and finding tools that allow me to see into places where I could not see before.

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The Need for Cross-Tier Visibility

As the leader of an Information Services Department, it turns out there are lots of places you can't see, especially when you're trying to see the flow of data or information from end-to-end.

But a few years ago, in the midst of a hospital crisis that threatened the success of a multi-million dollar system implementation, I discovered a great product that let me see everything "on the wire."

I was skeptical at first. My team had been chasing our "ghost in the machine" for several weeks—an intermittent interruption was causing complete work-stoppages in our hospital. Frustration-levels were high, not only among our clinical and business staff, but also inside my own Information Services Department.

My team members were using every tool at their disposal. The network guys were not finding the problem using their tools. Same with the apps team. The server group. The applications crew. I even had the security team bring their suite of tools into the mix to see if a bad guy was playing games with us.

The Solution: See Inside the Wire

Then one of my tech leaders came to me with an idea about a small company in Seattle called ExtraHop Networks. They had big customers like Morgan Stanley and T-Mobile, but no significant healthcare presence. They sold a network appliance that transformed raw packets into structured "wire data," and they claimed that their product would enable us to see everything communicating on the network—servers, storage, database, interfaces, and even end-user activity.

My CIO-skeptic-alarm went off, but my desperation got the best of me, and I agreed to a trial run. While we'd originally agreed to a 30-day effort, the team came back to me within the first few hours of the test, having found both the problem *and* the solution for our "ghost".

Needless to say, I pretty quickly found the money to buy ExtraHop. When we tallied the time staff had spent searching for just that single problem, including interruption and downtime in clinical and business operations, the decision was a "no-brainer."

And we could finally "see" inside the wire. We could see and fix not only problems that were affecting end-users (troubleshooting), but also optimize our work—finding problems that hadn't yet manifested as end-user complaints. We were fixing problems before they affected delivery of care to patients and families.

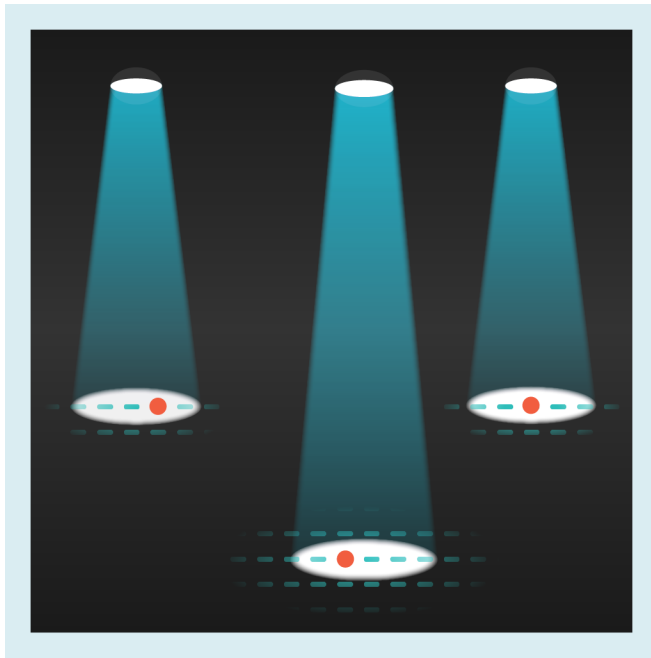
The security team jumped on ExtraHop, too, as the product provided visibility into all behavior on the network, especially the "East-West" traffic between servers behind our firewalls. They were now able to do audits and see data flows in a way that they hadn't been able to previously.

Breaking Down Silos

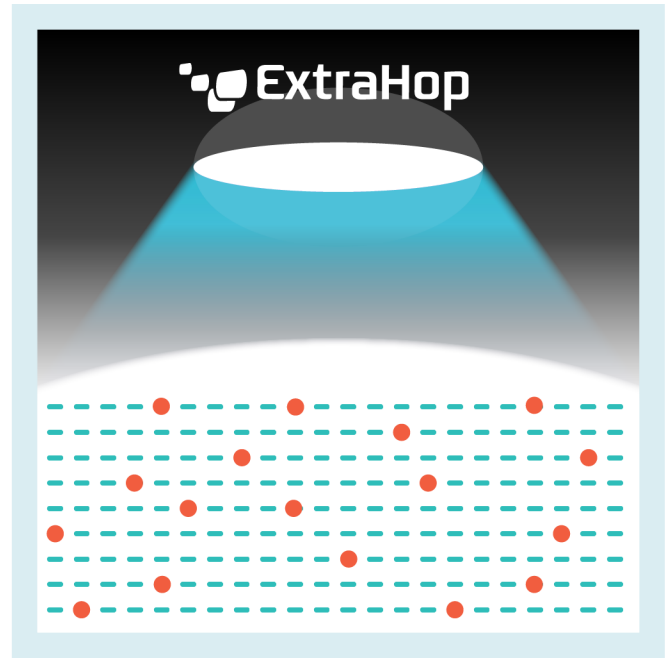
The best part? We broke down silos inside the Information Services Department. With all the teams using ExtraHop, there was a single source of truth. Instead of each team looking at their part of the problem with their specific tools, everyone had a tool with insight into everything on the wire.

Before ExtraHop, everyone had been looking around that big dark room with their own special flashlights trying to find problems, optimize operations, and improve security.

After ExtraHop, it was like we'd turned on a big, bright, overhead light. All our teams could see everything happening with the network, apps, databases, storage, interface engine—everything. Problems had nowhere to hide. We could finally see.



Before



After

ExtraHop enables visibility across the entire application delivery chain so that problems have nowhere to hide.

Interviews with Other ExtraHop Customers in Healthcare

I may have been early, but I haven't been alone in my enthusiasm for the ExtraHop platform. The company has since seen tremendous success in healthcare as organizations have made similar discoveries as I did. To capture these some of these stories and try to synthesize the unique value of ExtraHop for healthcare, I decided to call some other ExtraHop customers to hear what they had to say.

Steward Health Care System

Adam Hanson, Senior Director of Enterprise Infrastructure at Boston's Steward Healthcare, had a ton of stories when we caught up with each other, but here's one of his best:

"Because of what we can now see with ExtraHop, we've been able to not only avoid some expensive network outlays. We've also used it to 'prove our innocence' when vendors are blaming internal operations as the problem with their application. When we show vendors what we can get from ExtraHop, they're often surprised—so instead of providing them with packet capture files, we invite them to review ExtraHop's wire data with us, directly. There's no disputing the facts!"

My experience matches Adam's at Steward Health Care System. Just as with Lean methodology applied to manufacturing, you need the ability to see the end-to-end flow of an application in order to spot problems in healthcare IT delivery.

Lockheed Martin Federal Health

Eric Sharpston, the CTO for Lockheed Martin's Federal Health Division, also gave me some interesting insight on supporting a major government healthcare organization (I can't say who, but you could probably guess). With that kind of client, finding problems before they interrupt operations is critical.

He's implemented ExtraHop with some pretty amazing results: "I wish I'd had something like this in my early career, when I was developing software solutions for Department of Defense systems—to be able to tap into the wire and see the associated analytics now—it's pretty incredible."

Eric has also seen value from the Atlas remote analysis reports, which provide unbiased analysis of the ExtraHop data: "And Extrahop Atlas Reports are a very strong tool. It's good, hard data. Extrahop's made it easy for me to find ways to improve our code. Using Atlas with our developers helps us drive better, cleaner, faster, and more efficient code. That means our applications are down less often and we're seeing, finding, and fixing problems before customers report them."

He's also likes the "agentless" aspect of ExtraHop—no agents means less downtime. Eric says, "When we want to upgrade monitoring tools that use agents, it means we have to pull the item being monitored offline. So if the Oracle database needs a new agent, we have to take it down to install or upgrade the agent. That's downtime for the customer. Not so with ExtraHop. No agent means *NO* downtime. Spectrum, Tivoli, Openview—those are the tools of yesterday. ExtraHop is the tool of tomorrow."

Managed Services Provider

When I caught up with a VP of Information Technology at a managed services provider, I was pretty blown away at the massive responsibility he carries. This particular EMR hosting provider supports critical access hospitals across the country—over 1,000 of them—and of course he takes that responsibility very seriously.

He says, "I have a massively complicated environment. IBMi, Linux, Microsoft—the stack is all over the place. Traditional application performance management tools couldn't really help us. We have to prove we're meeting service levels. With ExtraHop, we're really implementing Lean. And being able to see what was happening across every client and everything in the infrastructure—well, as they say, 'The truth shall set you free.'"

This VP also explained how the visibility of everything on the wire increased collaboration between various teams: "We're now heavy ExtraHop users. I can have conversations that were impossible before—with my network team, development crew, and other vendors—showing definitively where the problems lie. The solutions come quickly, and the blame-game has disappeared. ExtraHop has given us huge credibility with both clients and the leadership team."

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Vice President of Information Technology

Sutter Healthcare

One of the earliest-adopters of the ExtraHop platform in healthcare was Wes Wright, now Chief Technology Officer at Sutter Healthcare. In his opinion, the value the platform provides is in providing application teams a holistic view of how their applications *really* work in production, versus how people think they work.

He says, “One of the biggest things ExtraHop does is mask the complicated network stuff so the applications team can understand it. They can build their own dashboards to measure key metrics and then optimize application performance accordingly. With ExtraHop, they can see their service line across all the technical components of the network—Citrix, network, compute, storage—so they can really understand how their application is performing for clinicians and business partners. It brings the whole story together, AND lets me drill into the detail when I need it.”



In addition to displaying real-time IT metrics, the ExtraHop platform can also analyze HL7 messages to extract clinical information.

Conclusion

Visibility is key to Lean methodology. As my sensei taught me, we need to first learn how to truly see the work being done—as it is, not how we imagine it to be—in order to identify areas of improvement. The same lesson applies to Lean in healthcare information services delivery. In order to improve availability, performance, efficiency, and security, you first need to be able to see the flow of data and transactions end-to-end.

In my experience and those of many healthcare organizations, the ExtraHop platform provides this visibility. When teams are able to see inside the wire, they gain a real-time view of what is happening with the network, apps, databases, storage, interface engine, and especially how those elements are affecting each other.

So, how's your vision? Can you see into your technical operation, or are you still bumping into each other in the dark; everyone with their own flashlight? Turn on the big, bright overhead light. It's much easier to see, with ExtraHop.

About ExtraHop

ExtraHop makes data-driven operations possible. By harnessing the power of wire data in real time, IT, application, security, and business teams make faster, more accurate decisions that optimize performance and minimize risk. Hundreds of organizations, including Fortune 500 companies such as Sony, Lockheed Martin, Microsoft, Adobe, and Google, start with ExtraHop to discover, observe, and analyze all data in flight on-premises and in the cloud. To experience the power of ExtraHop, explore our [interactive online demo](#).

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