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Amadeus: Leveraging AI for Intelligence in Orchestrating Your End-to-End Supply Chain



Access to precise, timely, and relevant information is critical for business and IT leaders who are seeking to transform their end-to-end supply chain performance. TraceLink has been investing heavily in AI/ML capabilities and infusing them into its OPUS Platform and solutions. Now, TraceLink is bringing LLM natural language capabilities to leaders who want to maximize their ability to leverage information to drive decision-making.

This session delves into how TraceLink's Amadeus AI solution helps leaders quickly and precisely access a vast knowledgebase available to help them meet critical supply chain challenges and accelerate supply chain orchestration initiatives with all network partners. Topics covered include:

- Use case playbooks and project documentation.
- Detailed API and transaction technical detail.
- How-to videos and step-by-step guides for implementing TraceLink solutions.
- Insights on integrating with diverse enterprise and operational systems.

The speakers also provide best practices for leveraging networks to orchestrate supply chain relationships. Watch the video now.

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Featured Speakers:

Caitlin Czulada
VP, Solution Center of Excellence
TraceLink

Paul Cianciolo
Chief Operating Officer
TraceLink

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Paul Cianciolo: Really thrilled to be talking about Amadeus and thrilled to be joined by Caitlin here. The solution center of excellence is a major driver of our success here at TraceLink. For those of you who were able to participate in TLU Day on Wednesday, I'm sure you got to dive deeply into that with Caitlin and the rest of her team.

Over the next 20 to 25 minutes, we're going to jump into something we're incredibly excited about, Amadeus. Shabbir referenced it yesterday during his keynote session, but I think it will hopefully open your eyes to what can be achieved in a very short period of time.

This is a product that we brought to market over the last three to four months, maximum. It shows the power of what you can do with some of these new

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technologies and leveraging some third party capabilities in some of your own environments.

We hope it will be impactful to all of you who are TraceLink customers that are using not only our track and trace and serialization solutions, but MINT, OPUS, and many things to come as well. With that, I'll jump right in. We'll get to see the product live here in a moment.

As some setup here, this is what we've been talking about for the last day and a half, this idea of an explosion of data that is created on a multi-enterprise basis by capabilities like OPUS and MINT. We've been soaking in this data for the last 10 to 15 years based on the track and trace orchestrations that we've been doing in partnership with many of you in the room.

This is a simple visual representation of that network of 290,000 entities that we've built over that time period in partnership with you across the end-to-end supply chain.

I pulled a couple of interesting product data stats. The first one on the left is transaction histories. This ties to the United States Drug Supply Chain Security Act, and its representative a huge set of aggregate product data. The one on the right is our reserved product serial number count.

You'll notice a slight difference between those numbers. I rounded the one on the left. The one on the right, I asked -- I don't know if Bob Sturim, our CTO, is in the room. There he is right there. I asked Bob, "How many serial numbers do we have?"

As a good engineer, he gave me down to the single digit of 257 billion plus. I figured I'd do that for Bob and call that out. I appreciate him pulling that for me. What you can see is just two data points of information flowing through the TraceLink network. It's a massive, massive data set that we can use.

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Obviously, for a human to be able to interpret that, understand it, is incredibly difficult to do and add context to it. As we launched OPUS, and we look at a metadata-driven environment, and we're able to use all of that capability at even greater depth than what we have in the past, we're terribly excited about being able to use AI and LLMs on top of that data set.

With that data set, we have to think about, all right, where are we going? Where are we trying to innovate? Often, when we're in customer engagements, we talk about this idea of walking the wheel.

MINT enables you to think about where in your end-to-end digitalization journey you may want to start. Like any good project, you may have ambitions to go the full wheel, all of these different directions.

Maybe you want to start in the clinical side. Maybe you want to start with your external manufacturing partners, your distributors, your wholesalers, your transportation providers, etc. Typically, our customers are choosing an area where they have a particularly innovative opportunity, a pain point that they want to dig into.

We begin that digitalization journey with them and one or more partners to get started, and then we can obviously fast-follow and get there very quickly with the power of MINT. What we are able to do from a data perspective is incredibly fascinating and incredibly opportunity-generating.

Each integration, each link, each subsequent configuration to the second, third, fourth, nth partner creates a massive amount of real-time data that you as customers on the platform with your partners get to leverage.

One of the big challenges, however, is with that data set, it becomes really hard to chew through that. Amadeus was born out of this concept that there is a lot to learn. Starting with TraceLink employees, our partners, our customers, we said we need a better way to learn, and who better than Caitlin to talk to us about that

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particular journey?

Caitlin Czulada: Thank you, Paul. You've heard a lot today, and yesterday, and the day before, all about the platform and all of these exciting new capabilities. As part of that, as part of TraceLink University, what we did is we tried to create thousands of pages of documents for you, how-to guides, certificates, courses, all of this stuff.

We created all of this documentation, and that's great, but what we looked at when we did this journey was we took all of the places where all of this documentation was created. I'm sure that this is the exact same for all of your companies.

Documentation is created by lots of different teams in lots of various ways, and housed in lots of different places. That's great for you guys, right? No.

Let's take an example. You have a question. You know that that answer exists somewhere in that documentation, but what do you do? Do you go looking for it, or do you ask your best friend, your best friend that knows the answer that's going to give you the answer very quickly?

You're going to bother that poor best friend who may or may not have a full-time job, but that best friend loves you, so they're going to answer your question, and they're going to be happy about answering your question.

We realized that we had the same problem, just like you. All of this documentation exists everywhere out there. We've heard over and over, Janelle just mentioned it again, that data is key, but you need clean data. You need it to be harmonized.

The first step that we did was we took all of that wonderful documentation that all of these wonderful teams were creating and we harmonized it so that it would be consistent, concise, and in one place. That way, whether you were an administrator or a solution partner, we had a single way that you could access this

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information that you could understand all of this information.

First step, we harmonized it. That was great. Just because it's harmonized doesn't mean that you can access that information. The second step that we did was we really wanted to make it open so that everybody could access all of this information.

Today, you can go to tracelink.com and you can access all of the information that we have created on all of the new solutions.

Whether it's MINT or it's your toolbox, OSE, to use to tailor MINT to your business needs, now you can come to the website. You can search for any information that you need. You can find the API documentations. You can take a training course. You can watch the videos that we're having of the presentations today.

All of that information is there. That's great. That was the second step, but how do we take it further? How do we take it the next step? What we did was we met Amadeus, your new best friend. Don't worry, your old best friend doesn't mind. They won't be heartbroken that you have a new best friend. It's OK.

We created Amadeus. Amadeus is your AI front door for all of that information. We know that people want information, but they want it quickly. They don't want to go back to that Web page that I showed you, and they don't want to search through it to find the answer. They just want their best friend to tell them the answer. We're all very busy. I understand.

What we did was we created Amadeus on top of all of that content that we just made out there available for all of you. Amadeus is available on the website. You can go there and you can ask it all sorts of questions. It's very friendly. It will answer your questions, just like your best friend does.

What it is, is it's instant access, right quick. Just like your best friend, when you use your chat on your company and he answers or she answers right away, it will

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answer you right away. It's never busy. It's never too busy to answer your questions.

Then it's tailored so that it streamlines the content. We'll go through a demo in just a second, but it's trying to lay it out in a very simplified way so that it can give you all of the information that it has. It's built on secure and powerful AI. Paul will go through that in just a minute.

It's built on the latest technologies for how to source and how to use AI, on top of all of the data that we are feeding it. We feed it continuously. Things change. Everything's changed rapidly. It's always continuously being fed with the latest documentation that we're putting out there.

When we have the newest release, you can be assured that it knows the answers to your questions about the new release. What is it? All that stuff. It's always up to date. Your best friend might not know the answer, but Amadeus does. That's what it's here for.

Let's take a look at how it works. Here's an example. You are the head of supply chain. You work in business, technology, and logistics. You're trying to enter a new market, and you want to create a fully digitalized order to craft process.

You've read about TraceLink's OPUS Magnum release, but you're not really quite sure you know how it works. You're trying to understand what these business objects are, these no code environments -- Bob loves to talk about no code environments, what is that -- and this Integrate Once.

What you could do is you could ask your best friend, or you could ask your new best friend. Let's watch. Coming to the website, TraceLink University has all of your information. You open up Amadeus. We're going to ask it, we're going to ask it some questions. How can I streamline the integration -- someone's typing -- processes for all of my supply chain partners?

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Paul: Those are my typos, by the way, not Caitlin.

Caitlin: [laughs]

Caitlin: Then you want to know, "OK, well, that's great, but what are the step by step instructions for doing that? Not just how to do it, but what are the actual steps that I need to go through to get this done?"

As you see, it's coming up here. It's providing you all of the information. There's a single integration point. There's real-time data exchange. It has all of the information, and it's laid out in a very easy way for you to understand. It's probably better than what your friend answers. They just give you the quick and dirty answer.

Not only that, it provides the source. You might want the actual API documentation. You might want the actual source material so that you can dig in a little bit deeper as you're trying to understand these. It always references the source material. That's always publicly available for you anytime you ask it a question.

Here, it's providing a little bit more information about all of our API Guides. How do I create and use business objects on TraceLink? Here, we see more questions. Then what is the relationship between these business objects? We'll wait for it. As you can see, it's providing all of the information in one easy place.

Paul: What this really does, very obviously, is accelerates the learning. I'll share with you that with as much capability and technology has been released by TraceLink in the last couple of months, I myself am deficient in knowledge.

Amadeus has become my new best friend, as Caitlin has pointed out, over the last couple weeks, as we've been preparing because there's just so much to learn.

As she mentioned, the capability in terms of it being continually fed by new data,

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new use cases that I'm able to learn from, that the team is able to learn from, is really phenomenal without going and knocking on Bob or Lucy's door to ask them questions all the time. It's really phenomenal.

To break Amadeus down, there's two main themes here, and I think they're instructive for all of us as we're looking to innovate. We went through our own journey here.

The first one is Amadeus is built with a back end through OpenAI. They have really powerful APIs that can be leveraged securely in their environment. We partition and secure all that information in our own environment that can't be trained on by the OpenAI platform itself.

We're in a fully secure location that we can use. It has enterprise security access controls that are heavily locked down and go through our CISO.

We ultimately look at, how do we tailor the user experience to deliver the fastest, best answer possible? How do we create an experience that feels like you're engaging with a human and provides human and provides human-level understanding? T

Hen scalability is obviously key. As Caitlin mentioned, we have tens of thousands of pages of documentation that it's chewing through to be able to get to the right answer.

The second piece is around how do we tailor it for our environment as a supply chain software and orchestration provider? Ultimately, as it continues to learn and chew through the questions that are asked of Amadeus, it can get smarter and smarter over time.

It's basically refreshing continuously all day every day. We've tailored our particular LLM to eliminate things like hallucination, if any of you are familiar with that.

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It's searching for the top answer. Not giving you one of the 10 best answers, but we're training it each and every day to find out how to give the best answer based on the question that's being asked. It results in a high trustworthiness score because of the things that we're trying to do.

If you ask it, "How do I set up my SFTP connection?" You want to know exactly how that actually is going to be done.

The last piece is it's helpful the way we've designed the user experience to be able to always provide the source information that you can actually pull up and dig into deeper should you choose to do so. We tried to combine those best of both worlds as we've embarked upon our journey over the last couple of months.

As we look forward, this is a slide that you saw yesterday with some slight changes that Shabbir shared during the keynote, and it unpacks our multi-phase journey. Here's where we're at today. We're at phase zero, the ability to conversationally query Amadeus and learn about the content on tracelink.com for learning purposes.

As we look forward, we're really excited about being able to add what's ingrained. The orchestration information that you have as a customer on the platform so you can actually start to ask questions about the data that's flowing through your own environment and those with your partners.

As we look into phase two, it's around how do we leverage pre-computed KPIs, and being able to ask Amadeus questions about some of the things like cycle times and lead times that you may want to know more about.

Then phase three gets really exciting, leveraging the power of the network on an end-to-end basis, where you can query and ask Amadeus questions around, "Hey, am I going to be at risk based on things that are happening anonymously in aggregate across the end-to-end supply chain?"

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12 to 18 months, we're on an aggressive journey of exploration and innovation, but let's take a quick look at how this might translate for a user across that same phased environment as well.

What you can see here is phase zero, and this is similar to a question. What is OPUS? The Amadeus is going to give you a pretty straight up report or straight up answer. You may ask a question in your first experience with Amadeus that Amadeus may not be aware of. You're going to get an answer like this, "I'm sorry, I don't understand the question."

We're at phase zero. We're still learning. We haven't loaded Amadeus up with enough learning and enough educational content to be able to drive further.

As we head into phase one, let's assume that you're you know that certified OPUS architect or that technician. You may have, in phase one, an even deeper question. You say, "Hey, Amadeus, make me a report," and you give it a set of parameters. Amadeus is going to actually serve this up to you. Pretty awesome.

It's going to give you that tabular view or that graphical view that you saw yesterday during Shabbir's keynote. If you're going to ask questions about that, but Amadeus, in phase one, may not know how to answer that question. It's not quite there yet.

As we add more and more data over the next 12 months, you may be able to say, "What would it look like to make me a purchase order report?" It's going to be able to ask you questions to make the report even more well-defined for you.

It's going to say, "Hey, do you want to ask me about supplier lead time or total lead time?" I may say, "Oh, I'm going to do total lead time." "Which fields, X, Y, Z?" It's going to build that report on the fly for you.

In phase two, we hope to be able to enable users to query even further. What are the lowest performers across that particular table? It's going to pick out particular

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products or SKUs, and it's going to be able to start identifying which suppliers are responsible for that and ask questions like you would as a normal user.

Is this in line with what we've seen from this particular supplier historically? Are there other risks? Amadeus, in phase two, is not going to be able to deliver an answer regarding other external supply chain risk. It's only going to know what's happening with that particular supplier based on the data that's in your environment.

Again, it gets very exciting in phase three, where you can make that report, you can build that out. You can go a little further. Amadeus is getting smarter, asking about different fields, adding different parameters to it. You're asking about lower performers. It's giving you multiple suppliers.

You may ask Amadeus that question again, and Amadeus is able to understand in anonymous aggregate fashion across the supply chain, "Is this particular product going to be at risk even further?"

It may be able to correlate and know that for a particular API used in multiple products, it's predicting that there's going to be a risk that you're going to face. It may give you that ability, like Waze on your navigational tool.

I may want to turn left instead of right. I may want to secure a secondary source of supply. It's giving you that ability to drive a little bit faster, a little bit further, with greater advanced knowledge. We're really excited about where Amadeus is going. Obviously, it's a journey, again. We'll see how long it takes, but we're rapidly moving forward on this.

What it means for all of the users and leaders in the room is being able to ask very, very average questions that we know you experience every day. We've interviewed a lot of our customers, and this particular example is a demand planning team leader.

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These are the types of questions that they were interested in posing to TraceLink about the data. With Amadeus as an LLM on top of that data, these are the questions we believe we're going to be able to answer in rapid fashion. We're incredibly excited about the journey that we're on with this particular product.

In closing out, what can you expect from us next? There's some really cool things coming up. We are in life sciences. Wouldn't be in life sciences without a good audit. We actually applied Amadeus to this process as well. We go through about 75 or 100 audits per year on a slow year.

The team has actually applied Amadeus to all of the audit information as well. We're starting to be able to provide an experience where customers can come in and perform these audits in a self-serving environment. We've been through a couple of those already.

The second step is integrating customer data securely. Third, we hope to have out very soon that ability to generate those on-demand reports and graphs that you saw generated during Shabbir's presentation yesterday as well.

A lot of things coming up. Very, very excited about the progress we've been able to make in a very short time. We know everyone is exploring and trying to understand what AI means for you, and hopefully, this can be helpful as you learn more about what you can do with OPUS, MINT, and the rest of the TraceLink ecosystem here.

With that, we'll close out and welcome any questions that you may have as well.

Audience Member: I have a quick question. You mentioned a little bit about the final stage of where you think Amadeus can go from an AI standpoint. Do you ever expect that to grow across customer platforms?

If there are APIs, for instance, that are utilized across customers, across different ecosystems, that you might be able to leverage that for insight into your own

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business, I could imagine there might be some competitive issues or oversight there, but it also could be a huge value if you're looking at the long-term sustainability of your business.

Paul: It's a great question. The honest answer is we're working through it. I think the thing we do first and foremost is always look at customer and partner data with high integrity and high security.

Everything that we've done with Amadeus, we formed our own AI board inside of the company to evaluate all the different decisions we were making, and doesn't check the boxes, all of that.

That's very similar to what we've done in a multi-enterprise environment, anyway. Anytime we're working with a particular customer's data, it's obviously segregated. It involves partners as well, but it's owned by the application owner, and it can only see what it can see.

When we talk about aggregate supply chain information, it's always anonymized, it's always in aggregate form.

[background music]

Paul: There are interesting things that we can look at, but we always are approaching it with that in mind.

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Meet with TraceLink to learn more about supply chain digitalization!
Fill out the form to schedule a meeting now.

Thank you! We will contact you soon!

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