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Abstract: Today our topic is the impact of applications rationalization and modernization and the transportation industry. Participants include Cindy Stoddard, APL's Chief Information Officer, Barbara Errickson, EDS Applications Portfolio Management, and Randy Mears, EDS Fellow with the — EDS' transportation industry.

Randy Mears: Today our topic is the impact of applications rationalization and modernization and the transportation industry. Participants include Cindy Stoddard, APL's Chief Information Officer, Barbara Errickson, EDS Applications Portfolio Management, and Randy Mears, EDS Fellow with the — EDS' transportation industry. One of the things that you see when you look at an industry like transportation is that there are a number of trends, and these trends will have an effect on the way things come together in the industry. One of the major trends in the transportation industry is end-to-end visibility of the supply chain. I'm not just talking about hindsight, but as close to real time as possible. With enabling technologies like GPS, RFID, better interoperability standards, we find ourselves on the cusp of global information systems that make this visibility possible. What will this mean for both vendors and customers in the transportation industry?

Cindy Stoddard:

Are you wanting then to go ahead and proceed with Trend 1, or outline all three first?

Randy:

I was going to do each one. I was going to do the first one and then get responses, and then get a little conversation and then move on to the next.

Cindy:

So you're going to — we're going to talk to each other about this particular trend; is that how it's going to work?

Randy:

Right.

Cindy:

Okay. All right, got it.

Randy:

Are we good on that intro, guys?

Cindy: Sure.

Randy: Okay.

Cindy:

As long as they can [unintelligible]. They can edit from that? Okay, okay. So Randy, [unintelligible] viability in the supply chain — oh, I'm sorry. I wrote it down here; I wrote it down here, mention your name like we're on the radio. Randy, this is Cindy Stoddard. On end-to-end visibility in the supply chain, as far as an emerging trend, I think you're absolutely positive. It's becoming more important these days as the sourcing moves into Asia even more than it has been in the past. And as people study logistics and their supply chain, you know, they're looking for that last niche of cost that they can — that they can squish out of their supply chain. And the only way that they can do that is by having very up-to-date, accurate information. And if you look at our supply chain, it's not just one service provider; there are many different service providers to get a piece of goods from a factory someplace in China or in Asia to the ultimate store or the consumer. So if you start thinking about the pieces of technology and the type of information that you have, interoperability in the supply chain is very, very important, because you will never have one system or one piece of software that can handle it all. The — the software and data have to be able to coexist and be able to communicate in almost real time — in almost a real time nature. Because the information that people are wanting to receive today has to be real time in order for them to make information. They have to be able to see what's happening with the goods, what is happening in the factory, what's — when they're being shipped, and proactively make decisions either to continue with the transportation and the logistics supply chain the way that they have outlined it, or adjust because of some other factors that are happening either within the supply chain — it may be disruption in the supply chain — or it may be some different consumer demands at the ultimate end. So, very important to have the right level of interconnectivity.

Randy: It appears that our customers are starting to demand greater and greater control visibility oversight, and you know, better ways for them to control what happens to their goods in the process of shipment

Barbara Errickson: Randy, this is Barbara.

Randy: Barbara, yeah.

Barbara :

I would agree with what Cindy has said, and yourself, about the end-to-end visibility and the way that visibility can cross enterprises as well. It's no longer good enough to have visibility simply within one supplier, hence the need to actually in some cases look at the way applications have been developed up to the current day, and realize that some of these suppliers who have been around for years and years and are very stable in what they can offer have applications that themselves may need to be restructured. And so that's the basis for another one of the trends we've seen, especially from an IT perspective, is to re-architect what exists today as business applications logic so that it's easier to be able to mix and match information regardless of where it came from. So [unintelligible] for example, the ability to track information with APL on a shipment, and in fact the container from that shipment may go onto a train, and so you may have a rail carrier in the middle, and then once again onto a truck and finally again onto a ship. And hence, all those things have to be able to cross-communicate, and those are very often the suppliers that have been around a long time. The Amazons are new, but they're not really doing all that intricate movement of the goods, and that's the challenging piece.

Randy: Yeah, it seems that there is a need to redefine the processes, the systems and the technologies that we need to support those systems, along with the rules that we use to work from company to company, as well as the terms on which we work with our customers. And the only way it seems to get there is to take these trends and put them all together and move in a direction that takes us to this more interoperative, higher degree of control and freedom for the customer.

Cindy: Randy, this is Cindy again. I totally agree with what you say. You know, you said the key word there, is "rules," and rules can change daily, maybe even hourly, depending on how — how flexible and agile somebody's supply chain is. You know, Barbara mentioned that, you know, a lot of the established suppliers really have legacy systems, right, and the Amazons maybe have a little bit more flexibility because they don't have the baggage of the legacy systems. Well, the suppliers that have been for a long time need to be able to adapt, or they may not be around in the next five to ten years. Because as you


look at supply chains, people who buy goods in source groups are going to go with suppliers that have the flexibility to be able to change right on the fly, which means interoperability, and it means good connectivity on good, solid information.

Barbara: Exactly, and — this is Barbara — and I would add that, in the past, especially with the stable suppliers, they have not had to deal with this same level of direct customer interaction, and hence for example — I won't say who the provider was — but recently I needed to change an address on something — and it wasn't an APL package, fortunately — but I needed to change the address because I had entered it myself incorrectly, and I was told that the package was already on its way. And as a customer, I needed to be able to say, "Please fix this address," and so that's the kind of ability to get in at the customer level and really manage right down to that piece what needs to happen to it. And legacy applications can hold you back from being able to do that.

Cindy: Right. And taking that to a global scale, your package could be a purchase order, and that purchase order could be with my key supplier in a factory. But something has happened, maybe something weather-related or geography-related, where they can't deliver all the goods on time. So I need to be able to react very quickly and be able to switch a portion of that purchase order to perhaps a secondary provider, so that I can manage my supply chain and manage my ultimate customer. And that's the type of — of system connectivity that we need in the future to be able to react quickly, so that we can make those decisions as things are happening, the right decisions for the supply chain and the right decisions for the company's ultimate customers.

Barbara: Exactly. And this is — this is Barbara, and I think what Cindy has just said is magnified additionally when the customer is the one that needs to know the package is still moving, and whether they need to know you've changed its route. To the customer that's not important, but to the supplier, they have to be able to manage that. So it's those many different perspectives on how all the information has to come together, and under the covers it has to be able to orchestrate whatever works best for the ultimate result, and that's where all of our effort to help people reach a new architectural approach, which we've all heard called services-oriented architecture, and that's the way we define access to these services that can be offered, that can be mixed and matched.

Randy: Well, let me — let me recap. What I'm hearing is that when we look at the landscape of suppliers, the preferred supplier is going to be the agile supplier. And the suppliers themselves are each other's customers as well, so it's very important that a supplier be preferred not only by the end customer but by the other customers in the supply chain, which are other suppliers.



Cindy: Right, absolutely.

Randy: So it becomes very important for a supplier such as yourself to be in a position where you are functioning at the head of the herd, so to speak, with your modernization of applications, your adherence to SOA standards and to industry standards that enable you to have agile, flexible systems that can ultimately be tapped into and utilized by customers, who could be other suppliers as well as end customers, through whatever technology avenue they have to — to view these things.

Cindy: Right, and that —

Randy: So technology is important, process is important, rules are important, standards are important.

Cindy: Right.

Randy: So what we're really looking at is a whole symphony of things that really are coming together at the same time around these new technologies, these new architectures, these new processes and so on.

Barbara: And I think, Randy, that that's a good recap, and it could take us to one of our other topics that I know you'll outline for us, the — the whole idea of standards and semantics that are —

Randy: Sure.

Barbara: — able to be standardized across industries.

Cindy: Uh-huh.

Randy: Well Barbara, I — I would agree with you there. The common services, common semantics and interoperability are all so closely related and so key to service-oriented architectures that, once these things have come together, they will surely change the business in ways that we don't currently even understand. So from that standpoint, Cindy, what is your perspective on these common services and common semantics?

Barbara: Common services or common semantics standards, I think they're — I think it's very important. If you look at the industry that we're in, the logistics, transportation industry, we're really a horizontal-type industry if you think about it. You know, you have different — different verticals that we serve; you have automotive, you have retail, you have high tech, consumer goods. And

within each vertical, there are standards for certain types of communication; like automotive has their standards, retail has some standards within — within the industry too.

Randy: Financials.

Barbara: But the rest of the information that we need to receive in order to supply that good information about the logistics supply chain, it can be different based on the vertical. What we need to get to is a standard way of talking with transportation logistics providers, so that we can open up the supply chain and make the information easier to deal with.

Randy: Are there particular standards that — that are important at this point for this kind of intercompany integration? For example, how does RosettaNet fit in, Barbara?

Barbara: Well, I think that — and in fact, interesting you should mention that, because RosettaNet of course has been around for quite a number of years.

Cindy: Yeah.

Barbara: And it just so happens that — Cindy I'm sure will be able to add a few words because she's a leader in that group. And it is through groups like that that we will end up with standard ways to define the logistics level of information. And when we even think about carrying goods, at some point — and that speaks, I think, perhaps a little bit to Cindy's comment already that you want to be able to pass the information between the different stages of a package's journey, with the concept in mind that you're moving the package and not always necessarily have to know what kind of supplier is achieving the movement. Hence —

Randy: Cindy, as a — as a member or participant in RosettaNet, what's your perspective on this?

Cindy: Okay. Rose — RosettaNet, Barbara is correct, has been around for quite some time. It started off, I think, as everybody knows, in the high tech area. And if you look at some of the successes in the high tech area that they've had, it's been very amazing. They've seen a lot of productivity and flexibility improvements, you know, in their business processes. And it's important with RosettaNet to think of — to think of it in terms of a business process, because what you're really doing is standardizing business processes and the associated data or information that moves along with the — with that business process. It's quite different from just an EDI standard where you have a

standard transaction set and you say from Party A to Party B, this is how I'm going to communicate this type of data. So RosettaNet is all built around business process and standardizing business processes so that you can deal better and more efficiently with external providers. Now, if you think about sourcing patterns and how they're changing, it's very, very important that you have that flexibility and that standardization. Because if I want to change that purchase order that I sent to Company A to Company B, I don't want to have to recode my whole process in order to do it. I just want to be able to flip and switch and say, "Go over there now." Now, with RosettaNet, we have recently, within the last 18 months, started up a logistics council within RosettaNet that is actually looking at the horizontal nature; how do you bring people together within the high tech group, into logistics, so that we can have common standards for sharing the logistics and the transportation information, but also how do we get other verticals engaged in RosettaNet so that that standard is not specific only to high tech but it takes into account the variety of other verticals that also have to use supply chain and logistics.

Barbara: Well, yeah. And this is Barbara, and I would add to that that as we look at application modernization, and as we look at the services-oriented architectures, we also think in similar terms that when you've got, for example, a web service, part of its strength is the way it deals with labels and values. And part of what Cindy's talking about is, when you get into those standards bodies, when you need is that one thing to map to —

Cindy: Uh-huh.

Barbara: — that is the definition of, for example, a purchase order set of information, so that you don't — you — you reduce the proliferation of mappings you have to do. That's one of the things that was a challenge about EDI. Every companies do EDI with outside the company, and actually automotive kind of drove that early on. You had a different set of labels to map to for every different automate — automotive supplier. That's what you don't want to have to do; you want all the automotive guys to go to one mapping, and then that's the only mapping you have to understand. And what Cindy's talking about is that same sort of concept, that we all get on the same page for labels and the way they relate to values, so that regardless of industry, we know the bits of information coming and going to us without having to do all these different mapping efforts [unintelligible]

Cindy: And so if you think about it, you're eliminating a lot of really non-value-added work.

Barbara: Exactly.

Cindy: Because what do different labels really add to the process, when you look back at it? Not a whole lot.

Randy: In the transportation industry, since so many industries kind of terminate there, in a sense, it makes sense to have a set of standards that all of those industries, even those who are not in transportation, can adhere to.


Barbara: Exactly.

Randy: So what we're really looking at is kind of exposing to the entire business world and ultimately to the customer all of those key functions and capabilities that are needed in order to move goods.

Barbara: That's exactly right. This is Barbara, and I think that another key thing is that because the supply chain and the logistics piece of it and all of the — those companies that do move goods, as Cindy as mentioned, having a logistics standards body, those groups of suppliers working together to define the standards, they know what's needed to track the goods. And so working with the companies who need to have the communication with the logistics suppliers, they know what they want to know from the end-to-end visibility by looking at both sides of that equation and gaining the understanding of those common processes with the data that needs to be tracked, and ways to refer to it that are semantically the standard ways. Then we'll make it far easier and faster to build those supply chain sets of common information.

Cindy: Barbara, that's correct. And if you think about standardization of processes, it can reach far more than just visibility. If you have standardization of processes and how you exchange the information, you get into areas such as supplier compliance, right; you can measure your suppliers against each other. It's very hard to do if you don't have a level of standardization with the information that you're exchanging. So you can reach way out there in different areas.

Barbara: Well, yes. And actually — this is Barbara — it's really very exciting what you can do ultimately, once you start getting all these standards in place. Because, for example, if you're looking for the most efficient cost — and of course we all are — then perhaps, even though it's not part of visibility, I want you to track for my packages the buyer, seller and donor of [unintelligible] or related to each piece. So that if something I send offshore gets, through my own company, put



into another thing I make offshore, and comes back to me as part of that newly-combined, fabricated object, I don't want to pay tax on the thing that was mine in the first place that made up all the piece parts. So all those things are important to track.

Cindy: That's absolutely right. You know, your whole visibility into landed costs —

Randy: Exactly.

Cindy: — becomes even more important when you have that — that level of information.

Barbara: Exactly. And so once we understand all those myriads of ways that information can be tracked, and we have re-architected our applications so that a service can offer those additional facts, even though it didn't used to, we make it easier to extended service or provide that kind of offering to customers that they've not had before.

Cindy: Uh-huh.

Randy: Well, I think another subject or another important trend that we might want to discuss at this point relates to container security. Container security is a very complex and critical subject. After all, much of it will ultimately be mandated by governments, and it's in many cases a safety issue as well as a way to just secure one's merchandise. How will this trend manifest itself in the market, particularly with respect to container transportation and security?

Cindy: Randy, this is Cindy. We're already seeing some of the trends, coming out with different ways of securing the containers. But one of the areas I think to focus on is, you know, what commercial value do some of these new security devices have. Because if it's purely to just try to secure the container, there are ways of doing that perhaps about a level of technology that — that is being looked at. I think the emerging trend that you're going to see in this area is really looking at the chain of custody, right; not the container itself as a stand-alone unit, but the container and where it's been and the types of goods and — and the events around that container and the goods, and how they call come together.

Randy: So we're looking at —

Cindy: Huh.

Randy: We're looking at a rigorous audited process that's evolving in order to give us the ability to secure containers, because it is not currently able to be done purely through technology. Is that what you're saying?

Cindy: No, I — I'm not saying that — I'm not saying exactly that. I'm saying that what you — what you don't want to focus on is just the container and securing the container.

Randy: Right, because you have to know what went into it, right?

Cindy: Well, you have to know what went into it, but you also have to know where that container has been.

Barbara: Exactly, yeah. This is — this is Barbara, and I think what Cindy's referring to is that not only do you have to than the container itself has never been opened; if it contained milk, you have to know that the temperature was proper the entire time, and how do you know that unless you know that it hasn't been out of its realm of where it was supposed to be, and — and allowed to get too warm. So you have to have full traceability; where has it been every moment.

Cindy: That's right, yeah; full traceability in the context of the — the milk, but also just knowing where the container has been for the last 30 days. Because you know, just knowing that on Friday it was secure and on its way to — you know, to Singapore, is not enough, because something could have happened to that container before it was loaded on the Friday. So really, understanding where the container has been, who has been touching the container, what type of activity. So the whole context around the container and the life of the container, and then the processing of the goods. Really the complete visibility of the life of the container, and also what goes in and out of the container. So really the whole chain of custody around goods and the container movement.

Randy: So it's really — it's really a complex problem, because it's processes, it's some technology, it's data accumulation, it's — it's a whole series of things that we have to do to maintain a complete record of what a container has been through, and in addition have certifiably accounted for its contents when it was first built.

Barbara: Yes. Yes, it's all of the above; you're absolutely correct.

Randy: So — so this is — this is — this is a whole set of systems in itself. These kinds of systems, as they become more and more important in this changing world, I think we're going to see more energy dedicated to

certification and technologies that allow us to be assured that things aren't tampered with. This is a great opportunity for some of the technologies related to sensors and related to GPS and global information systems to come into play, so that we understand completely what the life cycle of that container was, from the point where the — the contents were put in and certified until it gets to its location.

Cindy: That's — that's correct. And — and to Barbara's point, having the devices and the technology, just not limited to physical security but having those devices as other value along the way, such as temperature sensors, such as centers — sensors for bad things in containers that we could maybe pick up. So you can — you can have a range of difference type of technologies. Also you mentioned access to information, and information absolutely is very, very critical. And early access and early processing of the information into different Customs systems around the world. So you know, as the information becomes available, accurate, sending it off to different government agencies so that they can process it and see what different types of trends are taking place, so that they can maybe put aside or secure different types of cargo if needed.

Randy: Right. What about something — you know, a container with radioactive material, perhaps?

Cindy: Well, exactly. So that's a part of — the sensors would have to tell you [unintelligible] that bad stuff.

Barbara: Exactly.

Cindy: That's not the milk; that falls into the category of bad stuff.

Randy: So — so really when we look at — we look at this whole container security thing, it's going to be a big thing in the future —

Barbara: Huge.

Randy: — from the standpoint of information technology as being one of the enablers of a solution to these problems, in conjunction with the right processes and the right standards.

Cindy: That's — that's absolutely right. And you can also add onto that a little bit of analytics, because as you get all this information you have put together, then there'll be a tremendous amount of analytics that you can put against it for various reasons. For security reasons, but also for shipping

trends and making recommendations back to the customers on how they can improve their supply chain.

Barbara: Yes. And I think — this is Barbara — that even as Cindy has mentioned, you end up with analytics that can tell you things like, "Gee, the sensors on my containers have shown an increase in radioactive materials at a higher-than-expected rate at this one dock, and so that's one place where we simply need to focus." Now, I wouldn't expect that to happen in APL certainly, but it might be one of your suppliers and you might decide not to deal with them anymore because you're seeing a trend of information that looks like it could put your supply chain at risk, and so you're going to exclude them. So you need to be able to have those analytics to understand where do you see trends that are not acceptable from your metrics view.

Randy: What I think is also interesting is this whole comment about these analytics. This is — this — analytics are based on some data exhaust that ultimately could feed into the logistical systems as well, which is an interesting side-effect. Here are you trying to solve a security problem, but the information you've gathered in the process allows you to adjust your logistical systems.

Cindy: That's correct; that's absolutely correct.

Randy: It's like a great feedback loop.

Cindy: Right. So the systems and the processes, in addition to providing security that is — that is very much needed, they have additional commercial value that we can take advantage of.

Barbara: Exactly.

Randy: Well, that's great. Those are all the topics that I have; is there anything that you guys want to get into that we haven't covered?

Barbara: Oh, I think probably the — the final thing that I would mention — this is Barbara — I would mention that APL's view of their legacy applications and what needs to be done with them in order to become more agile and be able to offer some of these new mix-and-match services and so forth that we've talked about today, their perspective on all of that mirrors very closely what we've been working at — on at EDS. And so that is another reason why our partnership in looking at how to

modernize and enable APL to become more agile, that's why all this is working so well between us. And we think that Cindy sees the same journey that we see —

Cindy: Uh-huh.

Barbara: — and is very good at understanding what needs to be done to applications that are older, even while APL as a company is moving in the direction of all the new trends. And so it's bringing those two things together that are the important parts of how we are working together.

Randy: Cindy, do you want to share your thoughts on that?

Cindy: Well, I think — yeah, I — I can. I think Barbara did a good job recapping it. We are progressing on — on a journey. We have legacy applications, and what we recognize with the legacy applications is that there's a lot of strength in the legacy applications, a lot of good business logic. But in order to — to take those applications to the next level, so that they can do justice for the next 10-plus years, we really need to look at retooling the platform so that it can communicate more readily with applications and enterprises outside of the APL enterprise. But also internally, because if you look at the type of services that we offer, we don't offer everything to one customer. So customers that we have need to enter and exit the supply chain pretty flexibly; they have to be pretty flexible. So we need to be able to adapt our processes and adapt our systems to have that additional level of flexibility. So it means getting the goods and bringing it to the next platform level so that we can interconnect through standards, through service-oriented architectures, and through different platforms that really meet the needs of the type of business that we're in.

Randy: Well, that was great. I think it was an interesting set of topics, and I really enjoyed hearing your perspectives on them and having a — getting an understanding of how this — these technologies, these processes and — and these major trends are going to affect your industry and your reactions to those effects. So with that, I think we can wrap it.