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Welcome to this webinar. Intro to the arches platform part for information architecture as a note, this webinar is being recorded, and the recording and transcript will be available in a few days. Next please. I'm Annabel Lee Enriquez and I will be taking part in the Q and A at the end of this session along with my colleagues David Myers. But today the main presenter will be Dennis Wuthrich CEO Farallon geographics the lead developers of the Arches platform so without further ado, I'll pass it along to Dennis Thanks Annabel and welcome everyone.

Good morning. Good afternoon, or good evening as the case may be for you. Appreciate you joining today. Our conversation today will be about the arches platform and in particular, the information architecture for arches. It's the fourth in our introduction to arches platform webinar series and I'm gonna assume that you've had a chance to see the previous webinars, which have been recorded and are available on the arches project website. You'll find those webinars. A I think relatively comprehensive summary of specific aspects of arches and I'm going to presume that you are familiar with some of our core terminology and that you've got a basic familiarity with arches in today's conversation For today, I'd like to focus our conversation on really, I think a core concept here, which is how the arches manages its information and particularly why we've architected arches the way we have at it.

I guess I'll jump to the end a little bit. And say it's really an attempt to make it as easy as possible to be good stewards of your resources Our webinar today will look at the details of arches information architecture really want to focus on some real examples and will definitely reserve some time at the end for questions but before we dive in, I'd just like to make sure we're all on the same footing here and to remind you all of the aim of arches. In other words why did the Getty Conservation Institute and World Monuments Fund really consider building a soft where data management application like arches and ultimately, the real reason the rationale for building arches was to make it possible for you to be better stewards of your cultural heritage resources particularly as the conditions around this change.

And this is my little summary definition of art. The Arches ambition you'll notice here that I've got a little asterisk next to cultural and that's going to turn out to be kind of important and we'll come back to that shortly. But keep that in mind if you've seen our previous webinars or you've heard us talk about arches likely this slide will look familiar to you. And it's our attempt in a pretty pithy way to show you what we think of as the really kind of essential parts of arches. It's got data management capabilities built into it.

Data search discovery and visualization capabilities and even what we call task management and hopefully in looking at the previous webinars most these concepts make sense to you. And it's a pretty ambitious application and it's trying to do a lot and really for today. I'd like to answer the question, well, given this ambitious set of capabilities for arches really how do we do it. And this is the crux of why I wanted to spend some time talking about the information architecture application and really why you might be interested in understanding this will give you a better understanding of not only how arches manager data.

But why it so and what its implications are for you. So without further ado, let's jump into that conversation are the most important thing to get out of today's talk is the basic building blocks part of the Arches software. And it starts with something we refer to internally as a arches core or often we'll call it The Arches platform. And this is sort of the foundation of the underlying set of capabilities for the software. This is where arches implements some of the key things. It's supposed to do things like creating and supporting read, update, and delete capabilities for data.

Data import and export in bulk data indexing into search engine search and discovery tools arches capabilities are the core and the security model for arches is all part core platform. It's sort of the underpinnings of the software on top of that. We have some key pillars of the software and you can see them sort of listed here, at least the most essential ones. The data models are really a arches support for dynamically defining essentially the database contents that you want to manage all the content necessary for you to manager resources. The RTM is shorthand for the Reference Data Manager which is arches built in thesaurus and controlled vocabulary module functions are a way to implement custom logic for managing your data.

Geospatial services are arches are the services especially the JSA services that arches exposes both to its internal modules and external systems. And then its API or application programming interface, which is a key way in which we integrate arches with other systems. And on top of these killers we've got several additional items. And we'll talk about these in today's conversation. So plugins workflows and integrations and we'll have a good look at each of those on top of all, on top of all of those is the arches user interface and off to the right. Here we can see the API sort of spanning all these things the API or the application for a programming interface is used in large time power all these different aspects of arches really the key point that i'd like to make in Today's talk is that if you need a mental model for how arches manages information, how arches is architected you could do way worse than thinking about a Lego set and that's actually, I think, a pretty useful metaphor.

Legos are designed as modules bricks that snap together and really allow you to build models based on the the extent of your imagination. You can use Legos to build many, many things and arches is in many ways kind of like that for data management and that's really kind of the key. I think the key concept for today's conversation for those of you in a hurry. This is when we can write off into the sunset really there if there's one thing to remember, it's that arches is designed in a modular way. And that that's kind of the essence of today's conversation Of course there is a little bit more to the story, and that is so that's the idea that, yeah it's great if somebody gives you a Lego set.

But you still have to build and often what we care about is not having to build something from scratch. But being able to take advantage of a pre-built application. And we have that concept in arches we call them packages and in essence packages are really you can think of them as really pre-built Lego kits, but for data management arches packages are applications that implements that implement design ideas by a designer and I've chosen this example. This little Millennium Falcon example here not only because it's a cool model. But because it actually visually shows some of the ideas that I'd like to talk about at least an analogy.

There are all sorts of custom little bricks in this model things that come off in at odd angles and with odd shapes and yet they still snap into place. And that's that's a theme that I'd like to explore in today's conversation So packaged or applications in the arches world are much like these custom Lego bricks and they define the models the that code that presents data both in as data reports or data templates also as data visualizations and even custom user interface in the form of plugins and workflows and ultimately, these applications can be used to drive integrations between arches and other information management systems So let's take a closer look at that.

At this idea and I'd like to start, really, with this idea data models or really the databases that we implement in on top of the Arches core platform and we take a closer look data models are themselves made up of modules or components. So data models. These databases also define the data entry forms or cards as we call them that are deployed in an arches application and cards themselves. These data entry forms themselves collect or expose kind of core data types and the user interface elements are data widgets necessary to interact with with the database cards also can define report templates.

So how data are presented on screen and are also where we define permissions. So the security model is built directly into the database. So let's take a look at what the implication of this information architecture are and i'd like to say I'd like to start with a real world example here. This is a package that we call arches hCR just short for heritage environment record or historical environment record. And it's it's an application built primarily for managing cultural heritage in Great Britain. This is a this is a key thing that's the Brits do I think really exceptional well, they've got mandated requirements to manager cultural heritage resources and in and we're working very closely with historic England to create a package an application that could be used

throughout Great Britain to manage cultural heritage resources and a big part of that application really resolves down to a set of pre-built models a set of data databases that define the content of this particular application In the case of arches HCR there's something like 14 or 15 different models in place.

And there they've been defined based on the content or the information necessary to describe cultural heritage in accordance with the legal framework of England. And they include many of the models. They include many things that you might imagine. So models meant to keep track of investigation activities or archival sources or Heritage Areas or heritage assets. These these are these are delivered as part of this as part of this application. And in fact represents quite a high degree of intellectual effort. They they really encapsulate a lot of thinking. And one of the key things about models is that they are they're transferable They are freely available and they provide you with a lot of thinking.

In fact. I've got a little video here that I'd like to roll that shows some of the aspects of a model. So to get you organized are oriented here first on the left hand side of the screen, you see a tree here that shows. So the key high high level data themes for this model. And on the right are configuration forms. So when we start this little video up here and you can see in this case, we're looking at a Heritage asset model with a set of metadata. And now we've expanded this database tree to show you just how sophisticated and how detailed this particular model is going to look for a particular member of this model.

In this case, just spatial coordinates and show you how the arches model describes sort of key information about the content of the database the details here are less important. The key thing i want you to get up get from this is that once this model has been designed and deployed in arches it's freely available to anyone who wants to use it. And in this case, if part of your mandate is to manage heritage assets or assets or heritage resources you can you can take this model as a starting point. Once you've got that model in place a couple of things become really important.

One is How do you interact with the model. How do you interact with the database and an essential idea here is that arches automatically creates data entry forms based the that you've done that, you've designed, which means that without having to write a single line of code you can already deploy not only a database. But all the forms necessary to interact with that database. And here's an default. The entry form. And I'm going to think I've got a video here that I'd like to show you. And really the thing to keep track of here is the ability to take this automatically created data entry form and configure it for your specific use.

So when you run this video here and watch what we do here. We identify a particular element or field in the form, we can change the way it presents its data. We can change the order of these data widgets in a form we can update labeling to match the specific requirements of your data editing team The idea here is that without really doing any coding at all. You can take

these default forms and tailor them to your specific requirements. And that's a handy thing. Let's take a step back and review kind of what arches delivers out of the box.

So arches already provides AI would say a relatively rich set of data types and data widgets in which to build your database models. This is a real sort of a quick summary of the data types that come bundled into the core arches. But what if you need a data type that we don't that we don't that we haven't already created. Well, one of the things that we've done is we've documented in essence, how to build your own Lego bricks in sort of more precise language. What we've done is we've defined and documented the specific types and your own data widgets for inclusion in arches.

And it's this. It's basically exactly like this. If you know that the dimensions of a Lego brick and the way snap together you can create your own Lego brick. And we can do the same thing digitally with arches and let's take a look at that. Let's I actually have a specific example here. This is a data type that the folks at historic England identified their arches feature package it happens to be something called the British National Grid reference. And essentially what they do in Britain is tie the location of their cultural heritage assets to this sophisticated grading system here.

This is just one view at one scale. But essentially what they want to do is keep track of a grid reference when they enter information into arches. The approach supporting that was to build a British national data type and a British National Grid. Data widget. And you can see an example of that here. What it essentially does is it lets you enter a real world coordinate in one of several coordinate systems. And the data type is responsible for converting that into the appropriate British National Grid. The idea here is this is quite a specific requirements quite a specific data type probably don't care about this if you aren't in Great Britain but the Brits do.

And so they can take arches and make the exact data type that they need not been talking about modularity and key point here is that cards themselves are also modular. So you can take cards and extend them to your own needs and here's an example. Let's take a look at how you can use custom cards to update the data are presented on screen. So that I'll run what we're looking at here is a default data entry card. This is a card that shows a bunch of data elements that are just look that are just presented one after the other.

We're going to use a custom card or in this case, a map card. And what this map card does is alter the way in which the data elements are presented on screen provides a way of defining or configuring the specifics of the card everything from default location and base map through the order in which the various data elements are presented. So the key point here is cards are a way for you to customize the way in which you acts allow people access to your data entry forms and in fact, there's more to it than that You can do some things with cards.

Example of a card that extends the basic data entry effort to include spatial analysis. So let me start my video here and what you'll see is a case where a data editor is entering the location of

a investigation, so they can add a point here and I'll stop there. So they've add they've added a point and what they're going to do now ultimately what they need to do is figure out all the heritage cultural heritage resources that are within a certain distance of this point. And you could certainly do that manually but this card has been extended to support some spatial analysis where what you're going, what they're going to do here is buffer that location.

And then find automatically find all of the cultural heritage resources that fall within that buffer zone. And here you see that they're displayed on the map. These are the various members of the different models that fall that fall within that area. And this card has identified them presented them on screen and then automatically added them as related resources to this particular investigation location So that's an example of extending the card to some automated work for you. And then for those who want to do even more. You can really do again, kind of as your imagination allows some very interesting things.

Here's an example of a card that allows you to drag and drop a spreadsheet onto this map and in doing so validate the contents of that spreadsheet. Create new records in arches and automatically connect them to this record. So let's run this little video and you can see that I'm going to drag and drop a spreadsheet and arches uploads that spreadsheet does some data validation to ensure that the contents are correct. Here's an example where there's a problem with that record. We could go in and fix it or just review it later. We can review these records before importing and when we're happy import all the contents that spreadsheet automatically create new entries and arches automatically connect them to this resource and then I can go ahead and jump to the newly created record and continue to edit it or at least review and edit if necessary.

So we're sitting here now is a quick review of that a record in that spreadsheet that I uploaded. So the bottom line here is cards are meant to be a way of giving you a lot of flexibility over not only what but how to process data Which brings me back to this point about resources Now I started the conversation by saying that arches is about managing cultural heritage resources. But in actual fact arches information architecture really allows you to at least consider the idea of managing resources beyond the cultural heritage field. And in fact, that's what we're doing.

We really arches about managing resources at in a much more broad broadly used sense of the term. And let's take a quick look at what's possible. Here's a package an arches package specifically built to manage natural resources. So plants, the location and observations of plants and animals ecosystems that might be at risk. Basically in the natural worlds version of cultural heritage we're currently building a package in partnership with the Getty to manage conservation science data. These are resources that are all about space about objects works of art sampling of those works of art and the digital data that are derived from sampling works of art So this is a package really meant to manage digital information Here's another example of arches driving an application.

In this case arches is being used a package in arches is being used to manage the metadata for a large collection of images. And it's really in the background here. And it's providing its data to a completely custom front end that allows you to explore. In this case, the imagery associated with Sunset Strip in Los Angeles over the years from I think the 60s through the 80s and finally you can build packages for arches that have nothing to do with cultural heritage or natural resources. This is an example of a package that we're building to support the management tracking of water and wastewater usage.

And how they're related to personal ownership property ownership and how to build for the water and wastewater service does that you receive. That's a really quick tour of the kinds of things you can do with packages. We are starting to build a library of packages and as packages come online, you'll see them referenced at this location. So the way, if you're interested to see who's working on arches and in what capacity key idea here is that packages and all the custom data types in models and did entry forms that they encapsulate can be freely accessed and used for your own purposes.

So that's our goal. But really ultimately we use arches to work with data. And I'd like to maybe now transition our conversation to what you can do specifically with data and arches and that is actually going to be a conversation about how we can take advantages how we can take advantage of arches modular architecture to build very specific user interface elements and data processing tasks and integrations between arches and other systems. And let's start with a simple example. So right in arches world will provide you with some core reporting services. And here's an example that actually from the arches for science package.

So this is a specific example of a physical thing. It's a work of art. In fact, it's a piece of furniture and in this example, this particular piece of furniture has several names. It has several statements and you can see that this default report is capable of showing all that information. It might not be pretty, but it works of course. You might have some very specific ideas about how you want to present your information about your resources. Often organizations have quite clear ideas about how they want to present data, how they want the formats of the reports to appear.

And here's an example of what you can do. You can build in custom reports. And this example, we're using an approach that attempts to group content about a physical thing into themes. And in this case one theme as the theme of naming classifying a work of art. You can see here that it's quite a different display than what we saw previously up to including the way in which we present and use screen real estate to show things like names. So there's a lot that can be done here. Essentially we're back to if you can imagine it.

You can build it There are a number of places in which we think about presenting information to a user and arches. And I've got a little video here to show one way in which report and report templates can also be leveraged somewhat to run the old video here. And you'll see that in this package we can identify an element. This case a water account and show some basic

information about it. So by default arches is intelligent enough to know what to show a user when they're looking for a summary of information in the search interface but what if you have some very specific ideas about what should be shown to a user.

In this example we've identified a model in this case pass a model and decided that we want to show some very specific information about each one of these parcels and this example, we're showing the number of water accounts and businesses associated with this parcel water usage water billing and this is an example of extending arches default reporting templates to really be able to show the exact information that a user would need to see when they're looking at this case, for personal information It doesn't just stop there i've been talking about reports and report templates and how that can let you.

It basically gives you the flexibility of deciding what you want to show in a report to your user, but it doesn't end there. Arches supports a thing we call plugins and plugins are custom user interface that allow you to create very specific very tailored experiences for your user for your user base. This is an example of a plug in that does a couple things. Well it really several things. And let's get you oriented off to the left here is a panel that has a very as a custom data entry form and would allow a user to create or update new information about a bill after the right here is essentially a custom report that shows the results of a billing calculation this plugin allows the user to make changes to the billing parameters the input to will automatically run a new calculation.

And then update the database automatically with the results of that calculation so quite a sophisticated plugin that actually looks pretty simple but does a lot of work in the background for the user Here's another example of how you can take advantage of arches to provide custom data presentation to your users. This is an example in which we've integrated arches with a dashboard system to aggregate information across multiple models and display it in a number of different ways. So aggregating in this case, water bills showing the location of build parcels an aggregation and statistical analysis of the kinds of of what our users are.

In this particular basin and the bills the buildup the charges based on different kinds of types of users. This is the kind of thing that is super flexible. And if you're thinking, well, why would I care about this. I care about cultural heritage resources. Let me just say that there are some analogs here in place. And this is a way of aggregating information about the content of your arches package in a real time way so that you can do statistic analysis and presentation in real time to user community Finally I'd like to at least have a nod towards workflows.

We've spoken about these in the past. But essentially what workflows are our way of implementing more sophisticated data entry tasks and probably multi-step data entry tasks that require a user to complete a series of data entry forms in order to fully and completely enter valid data. We've touched on this in previous webinars. And it's actually sort of a topic unto itself so for today. I'll just leave it there. And direct you back to one of the webinars on the arches project work website that goes into this in a bit more detail I'd like to really turn our

attention now towards how we can use arches and the arches architecture to do some interesting things.

And in particular, how arches can have the architecture allows arches to integrate with other systems and I have a specific example in mind that i'd like to discuss and that is a real time integration between arches and Azeris. J.S. Giant technology in platform in particular, we've built an integration between arches and Nasri that allows arches to publish native as re future services. And apologies for the jargon. But if you're a generous person that probably means something to you so that you can use a completely different technology that is to say as real technology to access edit and create arches data in real time.

But within arches bro and I'd like to maybe pause for a moment and ask why you would want to do this before showing the software. So why would this even be interesting. Why would this be the kind of thing that might make sense. And let me pose an example here. Let's suppose that you've got an arches package running in the cloud. Let's say it's based in London and you have a distributed team doing cultural Heritage Resource management perhaps you've got some folks in mine working on field data collection and they're using a cell phone or a mobile device and arches collector to manage the collection of information.

Folks in a mine might actually just be interested in doing an initial survey of information. Let's say they've gone out and they're looking at the survey of potentially potentially important cultural resources such as buildings with their cell phone. They can walk up to a building maybe draw the plate on a map define the condition of the building and take a picture and synchronize that to the arches package back in London. Once that happens a J.S. person in Oxford can take that exact information, look at it within inside the ArcGIS Pro environment decide have a better geometric representation of the building perhaps they want to use replace that point with the actual outline of the building and they also want to run as a geo processing task to determine the potential risk of that building maybe maybe it finds itself in a particularly high risk area, for example once that's done another person using arches web application and potentially located in Cairo might take that information contributed by the every user.

Look at the risk factor and decide that it actually has it warrants up a high protection rate as these data are sink back and forth all the members of the team even those in the field can get access to the latest information. So the idea here is that people with the right tools are doing the right thing and progressively enhancing the quality and content of the Arches database. So with that as least an example of how you might use this. Let's take a quick look at how this actually works. So I've got a video here that shows arches and Azeri working in conjunction with one another.

So let me get this started here and I'll start with getting you oriented. So you're looking at a map inside of ArcGIS Pro and arches data are these greenish dots and bluish polygons that represent the location of what we call a consultation. You can think of this as the location of a building permit application. So in a sense there they represent sort of investigations about the

location of a potential redevelopment. So the idea here is that the Green points and there are the blue polygons are Arches data and there were presented in this map, as native as re future services.

Inside inside this particular organization. There's local data to and these red polygons represent building outlines or building footprints from an internal organizational view database so we're literally looking at one map that's showing both arches data in real time and native. And as we did in real time. So what we do here is log onto an arches server and ensure that we have editing privileges so we've done that. And notice what happens now we've enabled the ability to edit as resource or create a new resource inside of arches so we'll click on this Edit resource button.

And what it will do is give us the opportunity to identify One of the Arches resources. And we're going to look at this little dot here that represents a consultation location and that consultation location is arches data and we're going to select it. And once we've selected, it will register and what we see right away is that arches returns some basic information about this particular resource instance. And once you've selected it. I'm going to come in here and select a geometry from within the building footprint data set, which is a non arches dataset. And once i do that.

I'll upload it and i'll get confirmation do I want to upload that data into arguments. I do and notice what happens here after this upload our representation of this arches element changes from a point to a polygon and at this point, I can i can access that specific record and actually load arches directly into our J.S. here, you can see that our geometry has been uploaded and now I can interact with the record inside the arches Ed which is itself embedded inside the Asbury Park JS pro application and a very native way. So this is an example of being able to integrate arches in quite of intimate and sophisticate way within another application.

Which brings me to the point where we should start to put our toys away here. And talk about what we've learned today really my point today was to make the argument that arches is really an application platform data management platform that's designed to let you do a better job of preserving and protecting your resources, even if they're quite complicated the argument is that arches information Architecture lets you rapidly create applications often applications that do a really good job of managing data in a way that help you ensure that you're making informed decisions that lead to impactful actions for actually preserving and protecting your resources and in an ethos that I think is well timed in a world with limited resources.

The real point here is arches lets you take your limited resources and apply them in an intelligent way really to use their resources to build out applications that are able to meet your specific requirements and demands Ultimately the real benefit of understanding the information architecture and arches is that it puts you in a position to build software and deploy software that meets your requirements your actual real world processes your business objectives instead of the other way around. With that, I will thank you for staying with me

through what is probably a pretty dense and not necessarily super sexy topic and open up for questions.

So thank you very much. Annabel Thanks for managing our conversation today. And let's see if there are any questions And thank you, Dennis. As a reminder for the Q and A session. If you have any question about the content this webinar or really any other question about arches you can question using the Q and A future and then I will be moderating the questions. You can also up though any questions in the Q and to let us know that you also have the same question. We hope to get to all of the questions today. So let's get started.

David, do we have a question to start with, we do we have one from Salim and he's asking, could you please comment on the types and scales of organizations that have used or are interested using arches what main challenges these org organizations faced through their feedback to arches what kind of expertise these or these nations have developed in adopting arches. So I can take First pass at that so in terms of the types of organizations one category would be public agencies, government agencies. And I think they range from national authorities like a historic England or those in Jamaica or vetoes jersey Isle of Man.

There are also several cities like City of Los Angeles and the city of Lincoln in the U.K. And other cities are in the process of implementing and then there are also some in NGOs like national NGOs involved in the implementations and also in Barbados. Barbados and Jamaica. Work or others and a number of also academic institutions are involved in projects I can think of, for instance, some Arcadia funded projects Would you Annabel or Dennis add anything to that. There's a question of expertise and maybe challenges Yes. So as Dennis mentioned earlier, the one things about arches is that you can do.

So many things with it. And but what comes with that is that there are a lot of choices to be head with arches. And so a lot of those choices require some technical expertise not just in regards to that the technology of arches but also in the domain expertise and for the project, as well as knowledge organization so organizations that are seeking to implement arches David, what they would need to find that sort of expertise to bring to their project team. Alternatively they can arches has a list of service providers that organizations can hire to implement arches for them and that is usually something that happens primarily at the front end when what the start of an arches implementation but once arches is set up.

It's relatively easy easy to maintain. Moving forward and Dennis that you want to add to that i think you both covered it pretty well. I'll just add a little practical point, which is arches is like most other enterprise data management systems. So whether you're talking about as Regina's or Microsoft databases or Oracle applications technology that scale usually requires someone with some expertise to implement and customize and you can develop those skills in-house if you want. There's lot of training opportunities for technologists to master arches or as Annabel suggested. There are a lot of service providers out there that can help with deploying arches All right.

Next question. Thanks very much informative presentation. How much of the technology used to integrate arches with ArcGIS Pro can be reused to arches with Curious Dennis. That seems like a good one for you. Yeah, that's a good question. And the bottom line is a good chunk of what we learned in integrating arches with S3 is directly applicable to Q Just and in fact in some ways integrating arches with Q Just would be a bit easier because of some of the technical capabilities cuties offers and from, for example. Q Just supports native JSON service's arches supports needed to do some services.

The bottom line here is that you can have quite a similar pattern for integrating arches with cuteness. That is to say accessing arches data in real time identifying arches feature inside you just and then opening up the arches editor to update that improvement. Updated arches feature based on some of the same high quality geospatial data processing tools that Cuba offers. So hopefully it's not too jarring. The bottom line is a lot of what we learned for the S3 integration is really immediately directly applicable to Cuba's And so our next question is from Brett Ferguson. Do you have an idea of some of the packages you showed today and might be available on the arches packages page.

Some of the templates plugins would be great really great to start from when trying to build a package. I agree with you. And I think we don't have an exact date on when some of those packs. I'm assuming you're talking about the arches HCR package and as well as the arches for science package that i'm Dennis showed and I think there may be some other packages. But in regards to those we don't have an exact date, but they are coming soon, hopefully within the year I that the arches HCR package and should be available i would say the time frames this summer and the disco package certainly this year i mean arches for science right.

Yeah. So That's right. No were there yes. And we will this is also a reminder to definitely sign up for our announcement list as well as on any of our social media channels because when those packages are launched on that page, we will definitely announce that. And also on our community forum as well. Yes Next question from Masood Hello. Oh Thanks for the presentation. This is a related question. I think I have a question on the packages examples you provided, especially the digital photo collection and the GTI science project. Can you say more about them.

Does arches or can it be used also for non geo reference map 3. Cultural Heritage data dENNIS Yeah good question. And the short answer is yes, there is no requirement for geo spatial data in arches it happens to be an example. I use a lot because i come from. We use visual world, but it's not a requirement arches for science and the art and the example I showed arches as a digital image cataloging package really kind of both. I think speak to that, we do include in arches data. We call an annotation type that allows you to interact with images and mark up or annotate images in a way that's kind of an analog maps.

So you think about putting a location of a research on a map, you could also think about describing aspects of an object by annotating its image and arches for science definitely includes that that data type and some and some plugins specifically designed to is the process of managing images for example. So i guess my bottom line is you do don't feel like you with limited arches this does not require nor should you feel limited to only using it for. Do you spatially reference data that I agree. Dennis we have many implementations included resource models on our model data that is not that has no geo referencing at all.

So any resource is having to do with people there is intangible heritage that others are building models for. And so it really. Do you think of the geospatial capabilities as an aspect of the data management so it is just one aspect. There are so many other aspects that you can manage in regards to your resources and the types of resources that you have. There is another part of this question that I wanted to address regarding that digital photo collection that seem you're about the resource project. And note that that's an interesting one because we're not sure if that package will necessarily be available.

We hope it will. But that project's that feeds into a not into a different front And so we might not necessarily get the front end of what the visualization of that. But you will get to how they modeled the data that is used to power that front and site All right. Let's see dennis I'm wondering whether I another question. Yeah but I'm wondering if you could speak to any specific ways out on the community that you've seen people exploring working with those dashboards and live data aides. Yeah, that's a really good question One of things where we're seeing is this desire to use arches not only to manage not only cultural heritage resources or other resources.

But also data feeds that relevant those. I'm thinking specifically of a project in China in Gansu province near one cave complex where they've deployed arches to manage information not their buddhist kids and related cultural Heritage Resource and then have integrate it into arches live feeds that describe like, in some cases the CO2 concentration inside caves or expected weather like wind direction and participate precipitation so that or also the number of visitors in a site. So that they have a way of managing not only the cultural Heritage Resource itself but potential impacts on that resource. What they've done is integrate live data feeds into arches as in one case as a passive planet.

So that's definitely a way to integrate arches with telemetry data. Another way, which I hit that in today's conversation was to integrate a dashboard technology with technology that we use and support is a the technological Kibana it happens to be directly a direct output application that's directly related to the search engine that arches uses, which is elastic search. So this is a technology that provides authoring services for creating data visualizations that are real time. And that support that support statistical analysis statistical aggregations of information and as a way of supporting feeds from multiple applications and not just arches into an information display platform and if you're at all interested you can find out a lot about Kibana by going to

the elastic website and just typing in Kibana Kibana and it'll give you a lot of information about how you can take advantage of this data presentation and publishing platform.

Great. We have one more question Ann and it's thanks for formative and quite fund presentation. I know that global digital heritage has been using arches reporting or metadata of 3D objects, which is quite inspiring. Is there any plan on them or building information modeling environment package development or 3D annotation tools well I would certainly wouldn't want to speak for them and I would definitely encourage that question be directed specifically to them. But I will say that one of the things that the arches for science package includes is the ability to manage at least upload and present display Three dimensional models.

So those can be really quite diverse communicating point clouds. So our base point clouds that could be models they can and models of structures models of works of art models and molecules quite quite flexible. So this idea of at least accessing and managing and presenting three dimensional data is definitely something that we're thinking in arches science package and just to add to that. I think that's about our last question. That while geographics is probably like are the lead developers on the arches platform. They are not the only developers and arches is open source software. So anyone any organization, any person in the community can develop and develop their own modules develop their plugins and develop any functionality to add to arches.

And the only stipulation there is that enhancement gets shared with the rest of the community. And that's one of the reasons why as Dennis mentioned arches was built in such a modular way so that others in the community can easily add to the functionality of the software. Yeah, this is i think really super important point. And one that we should made a little bit more strongly for at all. And that is you don't need us or the Getty or anyone to have to do two to build an application. You can do it yourself. You've you have everything you need to implement arches in exactly the way you want.

And extended in exactly the way you want to. Essentially you don't need our permission you're free to you're free to take of the LEGO kit and build whatever you want with it. I stopped JSON there's one more question. And that's from Clive Boardman. Thank you. Thanks for the presentation. I would like to ask. I don't think it's an idiot question Can you list them advantage and disadvantages of using arches versus the standard j.S. Dennis. You can go ahead and answer that. But I will say that there are many advantages and they're different things arches is not necessarily a standard jazz and Dennis you can go into that.

All the more Yeah. So we could have a whole webinar just answer this question and then that might be fun to do actually i'll just say there are some. So let's talk about the advantages of arches. The first is it's it's a fully good offers all the juice spatial capabilities that you might want or need to manage your geo data within arches. And it does that on top of a specific technology called posts. Yes. And you'll have noticed I didn't i purposely didn't talk about technology today,

I talked about information architecture. Bottom line is arches arches in arches includes fully featured geospatial data management, data processing system.

And so in many ways you can do exactly the same things within arches as you could do within, say Azeri. So I think that's it that make puts it, at least on par arches has a different model for how it builds data how it organizes data and forgive me if this becomes too technical too quickly. But arches arches doesn't think of the world as a series of layers arches thinks of the world as a series of attributes and one model can have multiple geometric attributes associated with it. And each those attributes can have can be defined to include multiple Gentry primitive.

So like sides and polygons whereas in the S3 world you create a feature class. And that's conceived of as a layer with a specific with a specific kind of geometry. So if you wanted a German if you wanted to use multiple geometries to represent a single thing like buildings you essentially need multiple feature classes. So there are some pros and cons to that i'll just boil it down to I think arches has a more flexible data model, which gives you a lot more latitude in how you describe how you describe real world features and resources.

And there's a benefit to that. There's also the cost of that, which means that when you talk about integrating arches or other systems you have to think about how to turn it back into a flat model of the world. And there is a cut there. So there's some effort on that The bottom line is that's all doable. I think our arches as we had in demonstrates that. And ultimately My goal is my goal for arches at least in the geospatial sense is it should work in a seamless way with other Jewish spatial technologies, whether that's hugest or Azeri or matchbox or google Maps or really any of these technologies.

It's meant to be a first class Playmate with all the other technologies out there. And if that's too glossy of an answer I'd be happy to take this discussion offline, and we can talk about some of the real technical details in more depth yeah and Dennis out of fund to add to what you said. It's coming from the non J.S. perspective really, when you're looking at Arches you're not bound by an Dennis, that's in a different way. But you're not bound by describing the world according to in Japan, a geo reference way that was part of Matthew's.

Question so if you're describing cultural heritage or any other type of project or any type of race or other type of resources that don't have a geospatial component you you hot you are able to do that with a lot more freedom than you would if you were using a standard J.S. So that is definitely something to note. But as Dennis mentioned we definitely could have a whole webinar on that. Hopefully that begins to answer a question like Clive and I think we don't have any other questions. So I'm going to go ahead and close the webinar for now.

Thank you all for attending and we'll be back with another webinar soon. And just be sure to sign up for our mailing list. Sign up for the forum and also our different social media channels to stay on top of when our next webinar will take place. Thank you all. Thanks, everyone.

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