Updates and Developments in the ArcGIS System

Esri president and founder Jack Dangermond provides an update on the latest innovations of the ArcGIS system, new patterns in cloud GIS, and the future of GIS.

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Video Transcription

00:01 I've got a few other technology slides that I want to talk about. The first one is Desktop.

00:06 At 10.1, there are literally hundreds of new things that make the Desktop platform for creating content and…

00:14 …sharing content easier. These are in the area of mapping and visualization, editing, like feature-level metadata editing…

00:24 …so we know who edited what feature so you can contact them.

00:31 It's supposed to be a joke, but it didn't go over well. The fact that most of you edit the content.

00:40 Anyway, dozens of new spatial analytic tools that we're going to see a lot of this afternoon.

00:47 Things like spatial autocorrelation, things that allow us to be able to predict and explain things better, are coming on line.

00:58 Esri is advancing the whole world of 3D GIS. Last year we purchased an organization in Switzerland called Procedural.

01:07 They have a new, unique technology. They were actually the leader in rule-spaced content, 3D content generation.

01:16 They support things like movies, such as Cars 2, and also just interactive content generation using rules…

01:24 …as some of these little demos show.

01:27 It's going to be successfully integrated with ArcGIS 10.1 and then on with 11 and so on.

01:35 But the concept here is interactive design of content. So this will help in things like urban design, or urban planning…

01:44 …but also just in very large content generation like some of the military or VizSim worlds require. Very exciting.

01:54 At 10.1, we improve integration with imagery and also add a whole menu of exploitation tools to ArcGIS.

02:04 So this world of having to have an image processing system and a GIS system on separate workstations, no, this is unifying.

02:15 One of the big breakthroughs is something called dynamic mosaicking, so that I don't have to preprocess imagery in order to…

02:22 …work with it. I can just read the raw imagery files and have it dynamically served up in a massively scalable environment.

02:31 Here we're talking about thousands of images at the same time, or tens of thousands of images at the same time, or, okay…

02:39 …millions of images can be accessed directly in their raw format and served dynamically in a second, halfway around the…

02:47 …world using image processing services. A new architecture for the whole image world.

02:53 And then there are some additional tools like 3D measurement on objects. We'll see some of this this afternoon…

03:01 …full-motion video integration, like from drones and so on, and also just automatic image enhancement and exploitation.

03:10 So both ourselves and our core platform, as well as our partners like ITT VIS and BAE Systems, are integrating…

03:18 …around this environment to provide complete, end-to-end image management solutions in a COTS environment.

03:26 Closely associated with this is that at 10.1, we fully integrate and manage lidar data.

03:33 Some of you have lidar data, like filing cabinets of all these DVDs of historical data. At 10.1, we use the same concept…

03:44 …of dynamic mosaicking to access lidar data at multiple scales and resolutions without processing, and serve it into…

03:54 …rasters or serve it into triangulated networks, or TINs, or just point clouds.

04:01 And then at 10.1, we also have added a number of exploitation tools for visualization and 3D analytics.

04:09 The last thing I'll mention about 10.1 was shown by the first demo person. This idea that we connect the desktop to servers…

04:17 …so I can author a beautiful map or a model or analytics and simply right-click and send it over to a server and it…

04:25 …caches the data, tiles it, stands it up as either feature services or visualization services automatically.

04:33 This is, for me, one of the biggest and most dramatic things. I don't have to be a sys admin person to stand up services anymore.

04:41 It's simply possible to take what I do in the desktop and exploit it or share it in services.

04:47 And this is not only true with ArcGIS Online cloud services but also my existing servers.

04:54 I can simply right-click and send my geographic knowledge to these servers and it automatically creates…

05:00 …the service and makes it available to others. This is true, also, for imagery.

05:05 If I have tons of imagery data and I want to serve it, I can simply send it over to the server and have it do all of the…

05:13 …tiling without any headaches. This idea of, I want to use the cloud to store and manage my imagery data…

05:22 …and I want to turn it into a service automatically, it's just seamlessly taken care of with 10.1.

05:30 Speaking about services, the main engine, the platform for geospatial infrastructure, is ArcGIS Server…

05:40 …and that engineering technology has made huge steps at 10.1. It's much easier to install and set up an administrative server…

05:50 …it's much faster, it's running in the 64-bit processing environment, it's very scalable to mammoth processing work in.

06:00 For the first time, Esri is releasing a strong Linux environment for the server, complementing what we've…

06:08 …done with Microsoft Windows for years.

06:11 Then…you're supposed to applaud to that if you're a Linux…

06:14 [Audience applause]

06:15 Yeah, good. I applaud to it because it's a wonderful advancement.

06:21 In addition to these sort of back-office things, there's also a number of new functions like web printing, or improved…

06:29 …standards, for example, the OGC standards, but also web standards and ISO standards.

06:37 At 10.1, you'll be able to serve multiple symbology representations off of common databases dynamically into…

06:46 …all of the clients, web clients, and so on.

06:49 Complementing the server is a lot of advancements and enhancements in the web apps. These thin, open APIs…

07:00 …both as web viewers that live in a variety of environments as well as APIs that people customize and build their apps with…

07:08 …Flex, Silverlight, JavaScript.

07:11 For different reasons, people choose different ones and we're going to continue to support all of these…

07:17 …as well as the Explorer environment for 3D visualization, and you'll see this year some real advancements…

07:23 …in that 3D visualization web kind of client technology.

07:29 And then what Art showed, full integration of these web APIs with things like Silverlight and Microsoft Office.

07:39 And again, that may not be so appealing. I was sitting backstage looking at Art's thing, saying, "Oh, he made these symbols…

07:45 …on a map," like, ah, you guys all build that every day, right? But being able to do that in a spreadsheet environment…

07:52 …not you, but your colleagues and knowledge workers across the organization, accessing the services and datasets that you…

08:00 …build and provide, is just going to change the world. It's going geospatially enable the enterprise.

08:08 The third technology I want to talk about here is mobile. And we know the world is becoming mobile.

08:13 People will have less of these in three years and more of mobile devices.

08:20 We're all getting connected with smartphones and ruggedized devices. We've placed a huge investment…

08:28 …at Esri in this. It's our largest software development team, that is, mobile environment.

08:34 And our decision was to support right across the whole spectrum. Strong support for the iPhone. Strong support for Android.

08:43 Strong support for Microsoft's mobile environment, and so on. Both with open APIs that are customizable for developers…

08:53 …but also end-user applications that I can just download from the iStore and begin to use.

09:00 What do these applications do? Well, as was shown earlier, they can access intelligent web maps…

09:08 …but also, they can give data back. The whole crowdsourcing environment of field measurement.

09:15 Measuring; observing; every soldier is a sensor; every citizen is a, you know, is an advocate for a particular…

09:22 …into a database where transactions are maintained and then reused.

09:28 And this will affect how we do science. This is affecting how we do public service, how we do citizen engagement.

09:35 So it's…and also it'll affect us being able to take our GIS with us wherever we're at and access knowledge in context.

09:45 So I'm here, this is what I can get, and here's my observation. So this is a big thing for Esri…

09:53 …is the mobile environment developments.

09:57 And speaking about developers, at 10.1, it's a watershed of new tools for your colleagues in the software development…

10:05 …area, some in agencies and some in the private sector and academy. We're providing a whole raft of open APIs for…

10:15 …developers to build apps in the respective platforms of mobile, web, and desktop.

10:22 This is going to change things. One that I particularly am fond of is the runtime, ArcGIS Runtime developer environment.

10:31 This is sort of like MapObjects. This is a technology that Esri released maybe 15 years ago.

10:39 Very lightweight for maps inside of apps, but this is the full ArcGIS maps inside of apps.

10:47 Very easy to deploy. Fast, small footprints and runs, again, in the Windows Linux environment.

10:54 This is going to be, like I said, a watershed for the development community, bringing geospatial technology…

11:02 …into virtually every application.

11:06 Well, the last little initiative I'm going to talk about is something called solutions.

11:11 While we have worked at Esri on end-user solutions for many years, it's been problematic.

11:19 Our partners, and there are hundreds of them, have really pioneered the whole solution space and will continue to do so.

11:27 And in addition, our thinking is that we need to bring more standard ways of doing things to this world.

11:35 Not develop the solutions ourselves but provide patterns for solution development.

11:42 So, in Redlands, we call this ArcGIS for Local Government, ArcGIS for Electrical Utilities…

11:50 …ArcGIS for Water, ArcGIS for Health.

11:54 And while you might misunderstand what I'm saying, saying I could go buy one of these, that's not exactly the intention.

12:01 The intention is to be able to create a series of components that can be easily configured; they're easily accessible…

12:10 …on our Resource Center, our website, that you can download and configure to be able to build a solution…

12:18 ...with your own data and with your own pattern.

12:20 And this is designed not only for end users but also for partners to have a framework to enrich and extend.

12:27 And it consists of an information model as well as some example templates for web apps and apps and maps...

12:35 ...and workflows, et cetera.

12:38 These are, I want to call it ready-to-use templates, but not exactly end-user technology in all cases.

12:48 Well, Esri also has, in this same framework, a series of ready-to-use apps that we actually build in focused areas like in...

12:58 ...defense, in transportation, in redistricting, in mapping and charting, perhaps our biggest one, for production...

13:06 ...mapping of topographic maps and charts, aeronautical charts, and so on.

13:12 These are initiatives that we take a little bit more seriously. We treat them almost as, well, we treat them as COTs...

13:19 ...technologies, but by and far, it's not Esri that's providing solutions; it's our partners, and we have now almost 1,800...

13:28 ...of these organizations who take a niche, or in some cases a very broad approach, to taking our technology and making...

13:36 ...it real within organizations with focused solution spaces.

13:40 Now I appreciate these partners. They're going to be here, they've helped us partly sponsor this meeting...

13:47 ...and there are going to be a lot of them that you can meet and see what they're actually up to.

13:52 Our attempt here in the solution initiatives is try to bring better standards so we don't have 15 different common...

13:59 ...operating picture solutions. That we have a framework with this integrated information model and some...

14:06 ...patterns that people will build and take and make alive.

14:11 Well, that sort of concludes what I wanted to say on the technology front. What's next after 10.1?

14:19 I mean, we've spent probably close to $300 million on 10.1. It's a long process.

14:26 Hundreds of people working with you, getting input to be able to make that come alive.

14:32 Beyond 10.1, we'll probably call it 11 or 10.2; we're not really sure.

14:36 Over the next year, we've already started a number of new development initiatives, and these are sort of giving you…

14:43 …a sense of what they're going to look like.

14:45 Faster, more functionality, more usability, moving into cloud, more mobile environment, more 3D, more integrated…

14:54 …real time, all of these sorts of things.

14:56 One of the reasons we have this meeting, and why we have a lot of our developers here and idea people…

15:02 …is so that you have a chance to hammer on us and say, "Fix this" or "Add that," and so please don't be shy…

15:10 …during the next couple of days. It's part of the job that's here.

15:15 We also have something called the Ideas Portal, where literally hundreds and hundreds of ideas have come in…

15:21 …some just great ideas, and some just get it better, or a bug or something, and then people vote on these ideas.

15:30 So I invite you to get involved in that environment as well. This is what drives our work.

15:36 I mean, we're certainly interested in new technologies, the new platforms, mobile, cloud, et cetera. That's one of the big…

15:42 …things that drives our work, but the bigger thing is actually what you need and want, and it's…you know, we're…

15:49 …planning two years, three years, four years out, and getting kind of a sense of what we need to do is very important to me.

15:58 Esri is not simply software. We have a number of different units, like getting better at technical support on the web…

16:06 …educational support, increasingly on the web; professional services, especially aligned with our partners who…

16:14 …primarily deliver professional services to our users; and we also have a program for, well, we have a press. It's called…

16:22 …Esri Press, with several hundred books which are technical books, in some cases theory books, academic texts…

16:29 …and many of them are showed here. So I invite you to get engaged.

16:34 Last year, we started something called Certification Program. The Certification Program is to certify users about what they know.

16:43 I've never taken it really. I'd be very nervous about…no, no, I mean actually, technically, our users have asked us to say…

16:56 ..."I want some distinction." This isn't professional distinction, not to be mixed up with professionalism. This is about...

17:03 ...like Microsoft and Oracle and Autodesk and many of our colleagues in software development.

17:09 They want to have some status for...I am a level three, knowing this well.

17:14 And that's important for you, as employers, to hire the right people but also to build your own skill and understand...

17:21 ...best practices and knowledge stuff. So that's now available. You can take these certification tests across the nation.

17:28 It's one of those things that was an idea that came in, in the Idea portal, and we put millions of dollars into...

17:34 ...building these tests and programs.

17:37 Well, Esri, this is an organization that's designed to serve you. That's its mission, and I particularly enjoy this and have...

17:51 ...in ways, a personal affinity with you in public service. We think of ourselves as serving you.

17:58 And I like to share that because it means the relationship has to be, you know, intact.

18:07 Part of the reason for these meetings is for us to get to know each other so that I know, and my colleagues know best...

18:13 ...how to serve you. Our goals are not only service to you but also advancing this field on the science side...

18:20 ...and the technical field, and also promoting general geospatial thinking.

18:26 Our status is, we're a very strong company, actually. We're financially strong, we're growing. Even in spite of...

18:32 ...the recession and bad times, we've had just a wonderful...enjoyed wonderful support from all of you.

18:39 And we have many strong relationships. Hundreds of them, actually. Not simply business partners but ones like...

18:46 ...for example, the National Geographic Society, where we're partnered to push geoeducation in schools.

18:55 Their program, called GeoMentoring, is designed to get users to adopt schools, adopt classrooms, adopt teachers...

19:02 ...and bring your skills into the classroom.

19:06 Ralph Nader, about 17 years ago, introduced the idea of a GIS Day, so that he could see that we need to promote...

19:16 ...what we're trying to do in the education and in the NGO community.

19:21 And we've adopted that. Each year we hold this. Today millions of people show off their work in November during...

19:28 ...Geography Week, and this partnership has been really good for us.

19:33 Similarly, we have a number of alliances with people in the conservation community, The Nature Conservancy, the Society...

19:40 ...for Conservation GIS, Trust for Public Lands, and dozens and dozens and dozens of others in the work of...

19:47 ...applying GIS to conserving lands.

19:52 For the support of that, we have a nonprofit organization program with actually tens of thousands now of organizations...

20:01 ...who we provide software to, and technical support. This is very important in the concept of open government.

20:10 Okay, we can share data, but being able to share data and then have tools in the NGO space, where people can...

20:19 ...actually use it for real work, is intriguing. And that's basically our philosophy there.

20:26 I want to summarize a couple of thoughts that I've had this morning. Geospatial systems, obviously through the...

20:34 ...examples that we shared, the work that David talked about, is helping us understand our country.

20:41 That's a rather bold statement, but from where I sit, I can see your work consistently and that's what I see.

20:50 It's helping executives, it's helping technical people, it's helping policy people understand, and your...

20:58 ...work is glowing evidence of that.

21:01 This new platform, don't miss it. It's going to change things. It's going to make the content available.

21:10 It's going to support this idea, the dream that we've had for decades, of having an infrastructure that we can...

21:17 ...really collaborate. All this stovepipe stuff is definitely there, but GIS, and particularly GIS in the connected...

21:25 ...environment of the web, is going to connect and support the idea of cross-cutting.

21:31 And this platform will improve government. It's a bold statement also. It already has.

21:38 It's going to make things more efficient. It's going to facilitate open government and

communication and collaboration.

21:44 This is the in game for me and, I know, for most of you. Stephen Hawking, when he talked about technology, once said…

21:54 "With technology" - the emerging technology, and I certainly include GIS in this space…

21:59 …"at our disposal, the possibilities are unbounded." And considering the kinds of challenges, ladies and…

22:05 …gentlemen, that we're facing, this is what we need. For my perspective, it's exactly right on.

22:12 This is why I believe in it, and I know many of you believe in it.

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