

## **WD Presents Let Your Drive Thrive**

0:00

The broadcast is now starting. All attendees are in listen only mode.

0:06

Well, good afternoon, everybody.

0:07

This is Kent Tibbils with ASI, and I'd like to welcome you all to Day five of a Technology Summit. And thank you all for joining us today.

0:19

We have a great presentation prepared for you from Western Digital. We have Tyler and Guy are here today to talk about the Western digital product line.

0:31

So in just a second I'm going to go ahead and hand things over to Tyler.

0:36

They can do a quick introduction and get things started.

0:39

But, before we do that, I just wanted to remind everybody a few things for today.

0:44

First as a reminder, we are wrapping awesome prizes after the WD presentation, WD's Raffling a Nintendo Switch and a Passport drive.

0:59

So we'll be giving those two products away at the end, and in addition to that we have the Grand Prize of the ASI Notebook. For those of you that attended.

1:08

All five of our sessions will be giving away a gaming notebook as well. So lots of cool stuff to give away today to kind of wrap this event up.

1:18

And last thing I want to mention before we start is questions.

1:23

Definitely, we want you guys to be able to submit questions.

1:26

So go ahead and you can do that by clicking the question button, which is on your menu bar.

1:33

I didn't go ahead and type in the question. The questions come in and we get some breaks during the presentation. I'll ask Tyler and guide the questions or we'll just hold everything to the end. But if you guys have questions, go ahead and type those in and we'll get those answered by Guy and Tyler.

1:49

So with that, nobody really wants to hear me. They all came here to hear you guys.

1:56

So I'm gonna go ahead and hand it off to Tyler and we can get things started. All yours.

2:02

Awesome. Well, thank you, appreciate it.

2:05

Thank you, everyone, for joining our presentation today, and taking some time to learn about our products.

2:11

The theme of our presentation today is Let your Data Thrive.

2:15

I'm Tyler Morpurgo, and I'm on the Distribution Sales Team covering ASI.

2:20

Guy, do you want to go ahead and introduce yourself?

2:22

I'm Guy Weisbrod with Western Digital. I manage the corporate relationship between ASI and Western digital. It's a pleasure to be in front of you guys. We miss all the face-to-face interactions that we would have normally had through these technology summits.

2:38

But this is what we have to work with. So it's a, it's a pleasure to be here, Don't hesitate to ask any questions. There's certain products that come up that you're interested in and you need a datasheet or something like that, we can send something out to you pretty quickly. So please don't hesitate to ask any questions.

2:53

The portfolio is very broad and deep as Tyler will go through. But the offerings are.

2:59

So, please, don't hesitate to reach out if you have any questions whatsoever. Thank you.

3:04

Awesome, so, we're gonna go ahead and get started, and jump right into that portfolio.

3:12

So, yes, we do have one of the broadest storage leadership portfolios in the industry, and I usually like to call it the Santa Grand. We won't be focusing on all these products today.

3:23

We're actually going to be focusing on a select few that we wanted to highlight. So, we're going to be first starting with our Enterprise SSB, focusing, mainly on our MBM offerings.

3:36

Next, we're going to jump into our enterprise HTV offerings.

3:39

Specifically, highlighting our 18 terabyte drive that is now available and are 20 terabyte drive that is on the roadmap.

3:48

We're going to cover some of the new products on our client side. This is going to be RWD colors on the SSP and the HDD.

3:58

And last we're just going to talk about our ... platforms.

4:01

They're super dense platforms and we have two special features on them, the artic flow and ISO by.

4:08

So, hopping into it, the enterprise SSD.

4:12

We have a nice, short little video that gives a great explanation what we have to offer for these products. So, I'm going to go ahead and get this one started.

4:27

Public health enterprise on premise deployments at driving demand for fast, reliable, highly scalable infrastructure.

4:38

And, that's driving rapid transition to NVME in enterprise data centers.

4:42

SSD is running on PCA ideal for highly demanding enterprise workloads and applications.

4:49

Riding high performance and lower latency.

4:51

Then setup and sass SSDS less time, digital's, ... 84640, designed for you to choose the best fit for your applications and infrastructure.

5:04

Both are based on our technology

5:08

and self-based flash controllers. Yesterday, 40 is our third generation engine.

5:13

Your product, and pace on the success of our previous ... on the cities.

5:18

It is a performance designed for compute intensive applications and all flash arrays with dual functionality.

5:26

It offers to EndNote as options. The capacity is up to 15 kilobyte.

5:30

It increases performance significantly when, compared to our previous model, and features a suite of security and encryption options. The ...

5:40

680 is our mainstream SSD, optimized for low latency and consistent quality of service.

5:46

It is ideal for general purpose, mixed use workloads, and high volume file, and object storage.

5:52

Yes. It's 6 30. Delivers a promise up and Mimi.

5:56

So, Sarah, you get high speech. At a similar cost, is five entities yield and amazing performance.

6:03

Yes.

6:03

And 8 40, 6 40, I didn't list open flex, composable infrastructure platforms.

6:11

Now, your organization can optimize applications and infrastructure.

6:15

Whatever your data needs, Operations are changing faster than ever before, and so is storage.

6:23

Western digital's new generation of ... has you covered.

6:32

Awesome, So that video obviously went over a lot of information quickly, but those videos are available on YouTube for the public.

6:41

So, if there is anything that you saw that sparked interest, you can go ahead and go back to that video on YouTube and check in on whatever was specific for you, that you were interested in.

6:55

And then, next, I just want to hop into our enterprise HDDs. This is our full offering, starting with our entry level drive, all the way up to our high capacities.

7:05

And like I said, beginning, I really want to highlight our new offerings on the 16 and 18 terabyte.

7:10

Um, these are going to be the best for highest reliability, lower ..., and the lowest power consumption. So, these are going to be the best drive that is on the market right now that we have, often guide you on a dive a little bit more into these offerings.

7:26

Just real quickly, what you're going to see from this slide is selected capacities, 1 through 10, are effectively, what we would call traditional air drives. These are airfield.

7:39

And then, as soon as you go from the 12 14, 16 and 18 terabyte capacities, those are all helium sealed drives. And we're in like the sixth generation of Helio Seal Drives, we've shipped to millions. And millions of these drives are in racks out and use right now. And they've been proven to be the highest and reliability, lowest failure rates, et cetera, et cetera. But, it's important to know that the 12th through 18, or helios sealed, and then 1 through 10 are current offerings are all airfield.

8:13

Um, You can pick it up from there, Tyler.

8:18

Yeah, of course. And then, we have another video to highlight these products, and how they score so much.

8:35

Western Digital, we understand that there's constant pressures to get more out of your data centers, more storage, better TCO, higher density, lower power, and better reliability.

8:47

Our new Ultra star 18 terabyte and 20 terabyte hard drives are loaded with our most innovative technologies to help get you there.

8:56

Industry, first, these drives feature energy assisted magnetic recording technologies.

9:02

It's a breakthrough that enables higher media, allowing us to write more data to HDS.

9:09

In another industry. Triple stage actuators are three independent control points on the actuator arm.

9:16

This improves head position accuracy, enabling tighter track spacing for increase storage density.

9:24

Both drives use our technology.

9:26

The foundation of our capacity hard drives with over 65 million Helio seal drive shift. Traditional, is it clear, leader and helium technology.

9:37

For your most extreme scaling needs, you can find these breakthroughs, shingled, magnetic recording technology, creating the industry's first 20 terabyte hard drive.

9:50

It all adds up to more storage and less space using less energy. Are 18 and 20 terabyte hard drives can lower your TCO by 11% by either reducing your racks or increasing your storage in the same program.

10:04

We understand the constant pressure to get more from your data center for your tests. Are 18 and 20 terabyte, ultra star drops are the next step to help you meet those goals.

10:22

So that's our latest data.

10:25

Our latest release, 18 and 20 terabyte drive. So 20 terabyte drive it's important to note is a shingled magnetic recording. The 18 is still a traditional EMR or are now as we call it a CMDR.

10:39

Is a sandbar Drive we've learned a few things.

10:41

Along the ways, you know, we're working on Hammer technology still and ... technology.

10:47

Verve know, putting our bets into the, Into the Microwave Assisted Magnetic Recording. And this Energy Assisted ... recording that Andy was referring to in the video, was something that we learned along the way as we were developing our microwave assisted magnetic reporting. That.

11:05

If you put a little more little more current read, a little more current for the head, that you could actually flip these bits a little bit easier.

11:13

And you could actually put more density onto each platter.

11:17

Hence, we have a nine platter designed with 18 terabytes so which is the leading, leading in the industry. Competitors are coming out with an 18 terabyte as well.

11:27

But, once again, this is our sixth generation, \$56 million drives are out in the field today with very, very though of the absolute lowest failure rates in the industry.

11:40

So, the 18 terabyte is kind of an exciting new product.

11:43

And, we did introduce the triple, triple stage actuator on the on the on the head where it allows it to read the bits a little bit faster or write to the bits faster without having a performance decline.

11:59

And that's a that's a huge new technology breakthrough that we're using on 18 and 20 terabytes. But once again, the 20 terabyte is a single back Natick recording.

12:10

We're actually starting to see that's that part of our ecosystem become developed now, where we're data centers are ordering the actual Shingled products because they can store like, a store more at a less cost per gigabytes.

12:29

Typically, that's a big dataset or type of play where there is a host managed to a product, or the operating system has to recognize the, the ability to shingled the data as it's being laid down on the planet.

12:45

Awesome, and before we move on to our client products, are there any questions on our enterprise, SSDS or HDDs?

12:53

Yeah. So, we've got a few questions here, and I'll go ahead and ask a couple and just for the customers, keep going', gone ahead and type in your questions. We don't get a chance to ask

during the presentation. We'll, we'll definitely get to them at the end, but a couple of real quick questions here. Question Regarding the 12 terabyte 20 terabyte drives specifically, the ...

13:15

Drive, are those compatible with NASA storage devices?

13:23

Absolutely. As a matter of fact, you know, we did, we have a whole suite of ...

13:27

products, but there are many customers that prefer to use an Ultra Star and that NAS environment. So absolutely, you can use an Ultra star 12 through, Well, actually, for that matter, any of the Ultra Star products would, would work in as environment.

13:45

Now are the data center drives SAS based.

13:50

We have we have a full offering of SATA and SASS, as well as from a Sass standpoint.

13:56

We have TCG, encryption, TCG, thefts encryption, and on SATA side you can get an SSD encrypted drive as well.

14:06

So you have full offering of Santa and Seth's 12 gigabyte per section, or per second transfer rate for the, for the, for the SaaS product, and six for Santa.

14:19

OK, great. Let me just ask one more, quick question here, and then we'll go ahead. We'll get back to the presentation. And like I said, guys, we don't get to ask the question right now. Don't worry. We'll catch up at the end, but keep sending in the questions. We got a lot of them coming in right now.

14:35

So keep sending those in, But real quick, one, and then we'll move forward.

14:39

But will there are 20 terabyte drive's be in the gold or just or in the black line, what flavor of line or the 20 terabyte drive?

14:50

The 20 terabytes should be available in the gold line as well. And we can, we'll get to that goal line. Further into our presentation, on the black is nothing's on the current roadmap for an 18 terabyte on the black.

15:05

But it will have 60 clarified on the block.

15:09

Those are, those are real good questions, and, you know, we do have, you know, a gold product is essentially an ultra star product, will comes out the same factory line. We market the gold drive a little bit different, so it's a little easier to buy and small volumes if you need 1 or 2 at a time. That's where the gold, the gold product, fits the bill.

15:29

Um, from an SMR standpoint, we likely will not have an SMR, gold product shingled magnetic reporting. As the as like I said before, The host has to do some of the heavy lifting to just shingle and untangle the bits, as you're writing and reading information off of off of the platters. But as we as aerial density continues to improve, and as we move into future generations will likely have a 20 terabyte Gold product as well in a traditional for TMR type of recording, or conventional magnetic recording as we call it as well. TMR and CMS are interchangeable terms today. It's just the SMR product.

16:10

from a gold, from a gold standpoint we probably will not have Shingled magnetic recording and Gold product, just because the hostess does have to do some of the heavy lifting. And it would be require a little bit of tweaking as you set as you're setting your systems up.

16:26

Good questions.

16:27

Right. So real quick, before we leave data center, specifically on the data center drives, Is there anything unique about the warranty, or what's the warranty on the straps?

16:40

Of our ultra star product is a five year, five year warranty We write these 2.5 million hours of meantime before failure, which is kind of the highest rating and the industry. From the on the 12th through the 12th through a chain or 12 to 20 terabyte products, you get 2.5 million hours.

17:01

MTB, F is a common rating, but the industry uses from a reliability standpoint, and what we're finding, we're fighting now, is, we're getting, we're getting way beyond that as a, we started shipping 12 terabyte product, oh, four years ago and of, we're still seeing, millions of 12 terabytes are still our data centers today and working. Absolutely fine.

17:25

So, the heliosphere technology has really allowed, aye.

17:31

Allowed the reliability factors to continue to get better and better, the failure rates from a 12 terabyte for, for instance, are

17:40

Below about a half, below, half and half percent, which is pretty phenomenal.

17:47

Well, great questions, everybody, keep sending them in and I think we're gonna go ahead and, uh, jump back into the presentation here and keep sending in your questions and we'll be sure to get them at that. Tyler Guy, take it away.

18:03

Thank you.

18:04

Gonna move on to our Client Products, So, this is going to be RWD color, offering. Doing across from left to right, we have RWD black line.

18:16

This is going to be our highest performance product, and its knower see specifically youth for gaming, buy any computer PC that you have that needs high performance. This is going to be the perfect offerings for that, and.

18:32

see, moving on to the gold. Like, we were just saying before, this is our Enterprise offering on the client side, so anybody that's interested in those ultra stock products. But.

18:43

Um, looking for something in smaller units, so 1 Z 2 Z deals. This is going to be the perfect offering on the WD Bold, and we also have WD Gold and NVME SSD.

18:59

3.5 inch, or, yeah, the 2.5, 3, and a half inch NVME SSD as well.

19:06

Our purple line is going to be our surveillance line, so this is anything specifically for surveillance. We have this specialty on these purple drives is that they are 24, 7, 365, read, and write ready, so we can keep them running and going for as long as your system needs. We have HCES that can go into the backup system and then we also have a new product, new product, RWD Purple Micro SD.

19:39

This is perfect for adding to your cameras around your building or your customers, cameras around their building, pop these in. They have the same reliability as our ... in turn to 24, 7 Read and Write once. These get filled up. You can pop these into the backup system, download all the data and keep using them over and over again, so they're very reliable and a really good add on feature.

20:03

For anyone that's buying the purple HDDs, we have RWD read it, so like we, the question asked in the ...

20:11

system, this is our specific product or math we have three different offerings. On the HTTP side I will get into a little bit more.

20:19

We have the WD read the WD Red Row and the WD Red Plus, on the biggest difference between these three is that the WD Red is our entry level for the NASS RWD Red Grow is a higher level in terms of speed and reliability. And then RWD Red Plus is our newest one, which is a CMO based drive, and compared to SMR based on the red and red.

20:46

Then we have an SSD offering and the ...

20:49

two, if you have a hybrid model on your NASS.

20:52

We have this offering in 2.5 inch and M dot two form factors, And then our overall value and performance, this is our capture all, If you don't have a specific use case, is going to be RWD blue, and you can see a green product there as well that's RWD green.

21:08

That's our lowest entry level, so that's only going to be an SSD and is offered in 2.5 inch and M dot two.

21:16

So if anyone's looking to switch from an HDD and SSD and don't know exactly where to start and don't have a specific use case. The WD Green is the perfect starting point for a product offering.

21:29

And then we do have RWD blue, 2.5 inch, and M dot two and SATA NVME, and then also RWD, blue HDD That captures anything that is not specific use case. Guide, do you want to add anything to the colors right here?

21:44

Excuse me, I'm muted. Sorry about that. Just to clarify, the WD gold, NVME SSD is a 2.5 inch.

21:52

OK Socket that you drop in, let us see equivalent.

21:56

Once again we have an Ultra Star product that is R S N 640. So that is the WD Gold equivalent, if that's what folks are looking for single port performance. NVME. The, the, the WD gold NVME product, fit that bill.

22:13

one other thing real quick, as we gotta move through some of the wave, you know, traditionally, Western digital has better, know, and HDD manufacturer. We, we fired SanDisk about five years ago. with that our acquisition of ... came 50% ownership of the yolk, EG.

22:31

Dan Fab in Japan, that we have a 50% ownership partnering with Toshiba.

22:39

So, we have access to a tremendous amount of NAND products we released into really have taken the taken the market by storm. From a client standpoint by an SSD, western digital actually moved into the leadership position from a from a market share standpoint for client SSD last quarter.

23:00

So, at a very short period of time, the product set has lent itself to reach many different applications. Whether it's a WD Black Gaming SSD.

23:10

Whether it's an enterprise SSD enterprise NVME or your entry level will get them blue SSDS as well. We've managed to take the number one market share position from an SSD standpoint, or from a, from a client SSD standpoint.

23:24

So, we've pretty much got a product to fit whatever type of application that you might need from a, from a performance metric of SSD, whether you're still using, you're still needing to fill SATA sockets We've got plenty of clients .... And then we're seeing a tremendous transition, I'm sure most of our resellers out there are as well as those satisfy. Its are being taken up by NVME now, at a, kind of a blistering pace.

23:54

We were predicting that this would happen and it's certainly it's, it's, it's occurring right in front of us now, as NVME and shatter, pricing have reached essential reach parity.

24:07

You know, the NVME offers for six times, the performance of a SATA SSD.

24:11

Now, with that, you know, Western Digital has done a great job of having the right to the right product for the right application, which is really allowed us to take that number one market share position in the client SSD world today.

24:27

Awesome, great explanation guy.

24:31

Then, I just wanted to go quickly over a roadmap on some main themes that I want to specifically highlight is we're coming out with our new WD Black, as an eight bit. It should be available very, very soon, and this will be available up to two terabytes.

24:49

It's going to be on the fastest client SSDS on the market with up to 7000 megabits per second, and read it read speed.

24:58

And then we're also going to be having a four terabyte essence 7 50, which is the product that is available right now.

25:07

So that's two very exciting products that, um, we see it as a game changer in the gaming market.

25:14

And also, just want to highlight are: new to tear by NVME me product for WD Blue.

25:23

Um, so that should be in line with RWD blocks in terms of having a two terabyte offering.

25:29

The speeds on this are going to be lower compared to the black, but it's a great reliable MBM drive if there's someone looking for entry level NVME.

25:38

So those are the two things I want to highlight.

25:40

Anyone who wants this roadmap, feel free to reach out to us. At the end, I'll hop, we'll have our information gets over to you.

25:48

one thing that's important to notice these capacities. We're seeing them get even in the even in.

25:54

But then the client space were seen, you know, up to four terabytes style at a very small space which is important to gamers or even folks that are interested in refreshing their PCs.

26:07

Where, you know, today you will see a lot of a lot of PCs that have an H G D and an SSD just merely because the SSD capacities haven't been haven't been big enough to really be able to take all the storage, all the burdens of storage density.

26:25

So you'd have to have an HDD and SSD.

26:28

I know that we're now that we're shipping twos, two terabyte and four terabyte we're seeing a lot of folks just out of abandoning some of that HDD socket altogether.

26:38

And just using just using an SSD, so there's, there's, you can save some space. You can save a little bit of money by buying the higher capacity, SSDS and obviously, the higher the higher the capacity typically drives down the cost per gigabyte as versus, you know, if you're buying a two terabyte versus a 250 terabytes, your cost per gigabyte gets to be a lot more competitive if you're buying the more dense solutions.

27:02

Yeah. And on top of that, the switch in terms of performance from HDD and SSD.

27:10

Moving forward on this is RWD, gold HDD roadmap. So just want to highlight and show where we're at in terms of shipping. So we are shipping the 16 kilobyte an 18 terabyte into gold.

27:23

Then we do have the 10 20 terabyte on the roadmap for late calendar quarter year 20 21.

27:31

That that 20 terabyte will be conventional magnetic recording will not be SMR.

27:40

Then just wanted to highlight some of the WV purple products, just the switch and the six terabyte we're doing an upgrade to our six terabyte and the new SKU's there below. So if you are using a six terabyte, that product is phasing out right now, and we'll be switching to the WD ....

28:02

Then, any questions you have about Part Numbers and whatnot, you don't feel free to reach out to.

28:07

So Jennifer at ASI or Brian, they can get you directed to make sure that you're getting the right, The right, the, the right part number.

28:16

Jennifer expert at the WD line for certain.

28:22

And along with WD Purple Line as well, we will be offering the 18 terabyte very soon. This has been pushed out a little, so you should be expecting it within the next month, or, I believe, in October. Yeah.

28:41

Then here's the WD Red Row. So. Like the other lines, we're going to be offering the 60 terabyte an 18 terabyte and the WD Red Row, on that should be also coming out in line with the 18 terabyte purple in October.

28:58

Then this is a WD Red Blast. I know there's, I will write here, but the main thing you want to highlight is that the WD Red Plus is available now.

29:08

And is available across all of the capacities, but except for the 16 18 terabyte, which will also be coming out in October.

29:18

And this is a CMO drive compared to our WD rad and retro that our SME.

29:30

Then these are the main products that I want to highlight. So At least along our client products so the WD Purple Micro SD, and that product's going to be available up to 512 gigabytes currently with a one terabyte and a micro SD.

29:46

I know pretty crazy available.

29:50

In the near future, are WD Gold 16 and 18 terabyte ... that we covered.

29:57

The WD and gold NVME 2.5 inch drive comparable to our essence 6 40 on Enterprise side.

30:05

And then we do have an offering on the WD read on the 2.5 inch, SSD, and Undocked to form factor. A lot of people are not aware of this, so if you have any questions about that, that are more specific, please let us know.

30:18

Then obviously, RWD red plus EMR, guys.

30:21

Guys, there anything else you want to highlight on the client, product side?

30:26

No, I mean, I just thought that you know, the WD Purple, micro SD cards have a little bit of a different value prop because they offer full health monitoring, which is really valuable for, for most folks that are trying to keep an eye on how their systems are performing.

30:43

Awesome. And then we're, we can open it up to questions for any of the client products right now.

30:48

Yeah.

30:49

So got a few questions, first, kind of, looking back at some of the surveillance products you guys were talking about at the very beginning of the presentation.

31:01

Is there, I mean, maybe you can talk about two things. Talk about, what's the advantage of using hard drives in surveillance solutions.

31:09

And do you ever see a point where, as these will be offered in surveillance, or is it's always going to be a hard drive, better play.

31:19

So, I believe that eventually, I mean, very, very far in the future, SSDS will have a play in the purple surveillance industry, but currently, as long as the capacity of these HTDS continues to grow.

31:38

And the reliability stays the same across our HUD products, that slot will continue to be HPD.

31:45

For the time being, there's nothing currently in our Roadmap for an SSD for the WD Purple, or just the micro SD.

31:53

And then kept, Thanks for the question that you're already seeing what the micro SD cards at the camera level where you can have a terabyte of data. Essentially, a caching layer within have within a surveillance system.

32:07

So your, you can have, you're going to have instant access using your micro SD cards and still from a cost per gigabyte standpoint, know, HDDs or the best value that we have. And just the surveillance industry, industry, it's just, there's so much data that's being stored.

32:25

That's just not cost effective.

32:27

So much of it is being stored and never looked at some, some government regulations are security.

32:36

Safety and security processes that company have, they have to store that, that the store the data longer than they ever had before.

32:45

Whether it's whether it's body cams on police departments where they actually have to store that data, forgot it forever.

32:54

It requires a lot of a lot of density and the SSD's just aren't going to get there from a cost per gigabyte standpoint.

33:03

We're still see pretty big, delta is the cost per gigabyte or HDD versus SSD.

33:08

So HDDs are going to be around a long time in the surveillance and the surveillance industry and there's a lot of enterprise type of applications now where you they are using SSDs for kind of that caching layer stuff that they want to be able to look at very quickly and then they can archive it into the HDD portion of the of the server that HDDs are gonna be around long Tufts specifically for, for, for surveillance.

33:35

and obviously at the data center as well.

33:38

So HDDs, as one of the areas that HDDs are continuing to grow, is definitely in the surveillance market, exabytes continue to grow data centers, exabyte, you're growing at the end the surveillance market as well.

33:52

Brian HDD standpoint.

33:54

Good question, though.

33:56

So I got a couple of questions on the compute product line. So you're blue and green drives.

34:04

There's some questions regarding, like read write, speed performance between green and blue, and also some questions about power consumption.

34:13

So, can you talk a little bit about the performance difference, and power consumption differences between these two specific products.

34:25

Totally. Lacked, yeah, I don't know exact numbers.

34:30

For whoever's asking the question, I can definitely send you some data sheets to give you more specifics.

34:36

But just for reference, our green is definitely the most entry level with the lowest, read and write C, and also our consumption.

34:45

And then the blue is going to be a level lot from that as our mid level.

34:50

And then the WD Black is going to be the highest, and when it comes to read and write speeds and power consumption. I wish I knew specific numbers off the top of my head.

34:59

But obviously, if it's how many products in our portfolio, it's really difficult, Know that, specifically, from data sheets over to you.

35:09

Yeah, that's the data sheets, a pretty easy to get to at ... dot com, where you can do side-by-side comparisons, or data sheets on, on Green Bullet Data Sheet on Blue, obviously. Those are both are kind of, our entry level offerings. If you, if you need something from, you, need better performance metrics, or you're, you're concerned with.

35:31

Power consumption, then you have, then, you can look at some of the other products, as well.

35:36

And capacity is also a part of that.

35:40

Know that the WD Green is offered at lower capacities. So you're not gonna be able to get to some of the capacity points that you may need to add a W D Green offering.

35:48

But they all, once again, they have there's absolutely a space for WD Green, where that's where it's most cost effective.

35:57

And then if you need different performance metrics, you can move your way through some of the color schemes to get to find the right product.

36:04

Once again, super easy to find these data sheets on WTC dot com, and you can pull up side-by-side comparisons.

36:11

Yeah, and our information will be at the end, and we'll leave it up for a while, so anyone that needs to jot down our e-mail and send us specific questions on terms in terms of like, read and write speeds and power consumption, and send them to that.

36:25

Yeah. And so let me ask. I'm just going to ask a couple more questions, and then we'll go ahead and move through the rest of your presentation. But just to let everybody know that on the line and on the phone here, any questions that you're typing in, that we don't get a chance to answer?

36:40

Or maybe there's a very specific answer, and we don't have it right at our hand, We will be providing Guy and Tyler all the questions that you guys type in than that question will include your e-mail. So there'll be able to get back to you directly either through themselves or with the right person at WD. You respond back to your question.

36:59

So if you type a question in, and we don't get the answer, we don't get to ask, or answer it, don't worry. We will send them the questions, and then we can follow up offline. So just a couple, real quick ones. I may have missed this, but I know you were talking on the roadmap. I've heard you talking about four terabyte Drive's available on the M dot two factor, but I kinda miss is that.

37:23

Are those drivers available today? So as of today, you can get four terabyte M dot two assets these from WD.

37:31

So, on the four terabyte, should also be coming out next quarter, this, that the ..., a 54 terabyte, SN 750 were pushed out a little bit. So they will be available, Yeah, next quarter we're getting set up sheets out to our distributors right now to get those products set up.

37:54

And once those hit the price list, obviously ASI Womack everyone now with those prices listed that they're available.

38:03

And don't be shy to check in with your ASI reps as you're talking to them For other orders and whatnot as far enough from an update standpoint.

38:13

Where are we at with releasing of the four terabyte and we can provide updates that way as well?

38:20

All right, let me ask this one more question, and then we'll press on, but this is a really good one that caught my eye, you have a lot of products in your red product category.

38:32

Can you kinda give a quick review of how do you differentiate between red Blotch Red Pro.

38:39

Um, where's the different spots there?

38:43

Yeah, yeah of course.

38:44

So the WD read, just Read, is going to be R, our entry level product in terms of something. A product that people need for an SMR, an SMR drive.

38:58

So the WD Red is going to be, um, lower rewrite speeds and lower power consumption compared to the WD Red Row.

39:07

RWD Red Row is the higher level, in terms of the math products, and then our red loss is our new offering. That's a CMO drive inside, instead of an SMR.

39:20

And that is comparable in terms of production to the WD read.

39:27

Then our red SSDS are for mass systems. Like I said, for a, front end caching, if needed, and mass system. That's going to be, what our SSDS are there for, to offer that caching system at the front of your ... system.

39:42

And real quick, Yeah. That's a great question, because you know, we added the red plus. The red plus product line. As a lot of folks know.

39:51

There was a lot of pushback on an SMR type of recording on a hard drive, even though it then shipping their product for some. For some time. An SMR, which is in the red line.

40:04

Yes.

40:06

Is absolutely fine for the for the application. I mean, we've been shipping them for years. And there were some negative press around that, and we came out with the Red Line, which is a TMR. Perpendicular magnetic recording, our conventional, conventional recording. So that's why we have one more, one more offering in that crowded red space already.

40:27

The other thing is important to know if you if you have for smaller and as enclosures, the red and the red plus refine red, Pro is truly an enterprise product.

40:36

So, if you have, you have bigger enclosures and you're putting more HDDs in a confined space, the, the, the red Pro is rated for that type of environment where there's, where there's more heat is being created. There's more vibration issues, in NAS environments, or, you know, traditionally have issues with a lot of noise and vibration and heat. So, you would move up as you get into a more dense type of ...

41:04

solution, that you would use the Red pro-life it's good enough.

41:10

Alright, fantastic. Let's go ahead and press forward, and, you know, guys, out in the audience, please keep submitting your questions. We're going to go ahead and continue with the presentation.

41:21

So Tyler, Guy, you're up.

41:26

Yeah, so just our last slide here is explanation of our ISO vibe and Arctic flow, and R J bottom J Box systems.

41:36

It gives a really good need to move.

41:38

We were worried, the new \*\*\*\* it There you go. Yeah.

41:42

And, yeah, It's a great explanation of it. And we can go into a little more detail afterwards.

41:49

Yeah. Just real quick, before we evolve, as we roll it, it'll be self explanatory. Go for it.

41:56

The ultra Start data, one tip, is an innovative storage enclosure that manages heat and vibration to boost efficiency, reduce power consumption, and enhance reliability.

42:08

Conventional drives enclosures are difficult to cool because they blow air from front to back to the hard drives and such. As the air cools drives it front.

42:18

It heats up, and by the time the air is halfway across the array, it's not doing a whole lot of cool things to stay hot, making them more likely to say that's. Why? we did the Arctic Assistant designed with three separate, cool itself. Just the first stone tools, the front half of the extra spin around the outside of yourself.

42:50

Simultaneous separate, Eric. First fresh, air to the slides and the rear cooling strives for effectively. Dedicated George ... channels here to the aisle, modules, and power supplies. Arctic flow allows a little bit about asked our competitors just providing frequency regulation. Is it another entity, a hard drive efficiency, the positioning of the rate at which can cause errors and loss performance?

43:28

Externals, vibration, can jump from fans, servicing, even sound waves plus H drive it into its own vibrations that drives around. That's why we created another unique feature of the Ultra Start but I still live in the brain, decisions in the face, patches of suspense, protecting each slice, some external bifurcation, and ensuring that the rich and it produces is transmitted rest of the array seals restarts platforms. Also, research and isolated, which thanks to Arctic. Further reducing vibration. The theorem is in the day.

44:15

Thanks to Arctic ice. Drives Ultra. Storage Enclosures show, returning rates, 60% lower drives housed in the previous generation plant at Western, Digital inside Secure. Hard drives better play, improve what's outside, better cooling, and less vibration need, stronger performance, lower operating costs and greater reliability in your dataset.

44:41

The ultra star platform staff with Arctic slope.

44:48

Awesome. I'm just gonna leave this up here so you can see the offering. In fact, you want to go into a little more.

44:54

So these are what we call platforms right, these are dense storage shelves it. ASI is we've been selling of an ESI for the last three years ever since we franchise.

45:04

But WD we, see, we have tens of thousands of these units actually out in the, you know, in the field today.

45:13

And when we, we went to a newer design over the last three years with this Arctic flow, and I survived, and we, we follow the, quality of these, these, these units very, very carefully.

45:28

After about a year of shipping these, we just wave, we weren't seeing any, are amazed at all from, from a drive standpoint.

45:36

We wanted to take a very close look at it, and after really having data of about three years of shipping this product, we, we've, we discovered that are already very low RMA rate, or drive failure rate.

45:51

Was reduced an additional 62%, just because you've got Arctic Flow, which keeps the drive's cool.

45:58

And it really does keep it cooler than that than any other product that's out on the market today, from a dense storage shelf.

46:04

The picture you're seeing up there right now is a 102 bay for you, for you, 102 Very, very dense shelf, right. So, lots of vibration and lots of heat would be created in a normal type of run of the mill type of chassis.

46:20

What we did see was, we just weren't seeing it, any returns. And so, we thought it would be a good idea to take, take an actual look and see what the studies really show.

46:29

And, and we do see, a 62% reduction, like I said, are already low failure rate. So that drives just start failing in these, in this very safe environment for dense storage to learn.

46:43

Like I said, we've shipped tens of thousands of these worldwide now.

46:47

Um, and it's been interesting.

46:49

Once you get, once you get a customer on one of these, the recidivism rate, they come back and buy another one. It's a very cool design, very smooth in and out of the rack. That's a tool-less design you don't need to know. You don't need wrenches and such and screwdrivers to get the drives in and out of there in and out of their chassis.

47:10

So super successful product for Western Digital.

47:14

And I know a lot of a lot of folks might be no more focused on client products, but if you're trying to help somebody with the with a with an on prem type of data center, these, these are great.

47:27

because you can, you can store no, 102 18 terabyte drives in this in the shelf.

47:33

So you wouldn't, you'd only need one shelf drive for most storage applications, but a super successful product.

47:43

ASI has the compliments for the products that that we offer.

47:48

So any questions about this please don't hesitate to ask. It's a little more sticky than just a standard component as its in a chassis and what not. But it's got a full five year bumper to bumper warranties.

48:00

Which a lot of our other competitors still only offer a three, a three year warranty.

48:07

Um, once again, when you can reduce heat, you can reduce vibration.

48:11

You really nothing that can go wrong with the fans or have a vibration isolation, is a fan's, once you crank up the fans to, to high RPMs you can have, you can have a lot of other vibration issues with that. So, it's a pretty, a very well designed platform product. So any questions about that? Please don't hesitate to reach out, ask.

48:40

Awesome. And that is the end of our presentation, I really appreciate you guys. Taking the time out of your day, and listening to what we have to offer, Our information is up here.

48:50

So, you have very specific questions, or want data sheets, roadmap, etcetera, or any other questions about our Western digital products, please feel free to reach out to these, and I'd also really like to thank ASI, especially are product managers, Lin Chang and Jennifer Chen, you guys have done a fantastic job, and, of course, Brian Clark And Shelley, you guys have been awesome. And assisting and helping our business and we can't wait to see what happens in the future and we love being you guys as partners.

49:20

Yeah, just real quick to finish up, yeah, we couldn't ask for better partner than ASI.

49:26

ASI's are number one distributor from a client product set by far, and they do a really good job in the enterprise market as well.

49:35

You've got a bunch of true experts over there that that can get your product out to you in an efficient and efficient fashion ASI's logistics are second to none.

49:46

They've got warehouse has got a very wherever where they keep product ready to go.

49:50

Airside is truly still a, a stocking distributor which is really hard to find these days a lot of distributors don't want to stock product ASI as no qualms whatsoever about stocking products, so

can't say enough about the partners. They assign Western digital, so thanks. Thanks for signing into the webinar and ASI, thanks for the partnership.

50:14

Great. I really appreciate the accolades, guys. But before we do wrap up, I actually got a couple of questions.

50:21

So we can take a minute to ask a few, since we have a few minutes here with extra time, we can go ahead and, uh, jump in with a couple of questions.

50:31

But it's so hard to not end on such a great closing. Comments. I love it. We're here to answer questions. So let me ask some questions on the Ultra Star product that you were just talking about.

50:47

Got a couple of customers asking specifically about that one, and I hope you have the answers here but they're trying to determine the depth of the Ultra Star.

50:58

They couldn't tell and were wondering if it was 36 or 38 inches.

51:04

There's asked.

51:05

Because some of the older racks don't accommodate 30 inch or devices there longer than 30 inches very well. So they're wondering what the, the length of the Ultra star product?

51:17

OK, OK, that's a great question. And it's minutes.

51:23

It's important to have that. That should be the first question.

51:25

Because the red, whoever's asking the questions Right. Because the UD 102 is a longer chassis. And I honestly I can't give you the dimensions right off the top of my head.

51:37

But the UD 60 is going to be there's a 60 days before you 60 That's going to fit into any of your conventional, your racks. Now, the...

51:49

102, um, we can typically make it fit into a regular act. But the, most of the data centers today have moved to a little bit deeper type of racks, so they can accommodate more dense storage. That's, it's a, it's a really important question, Is, you don't want to be buying a Unit 102. If your, If your, If your RAC is only 26 inches deeper, whatever it might be.

52:14

Once again, I'd love to have that question sent to me that I can give the actual specifications Are the, for the Ultra Star Data 102, you shouldn't have issues with.

52:29

Yeah, and also just to clarify that Arctic flow and ISO vibe is across all of our Ultra Star platforms. So it's not specific, just to the data 102, it goes across all.

52:40

Yeah. And we'll be sure to get you guys, these questions, you can follow up in more detail with anybody, or even answer the ones that we weren't able to get to.

52:48

But any kind of sticking with the Ultra star and the Arctic flow product, how does that, how does that connect to the network? We couldn't really tell from the pictures of the presentation, but how do you connect that to your network?

53:04

OK, another, another great question, so, both, both of these are the ... Platform. The ... 102 have to IO modules and each one of those IO modules actually has three SASS cables that come out of the back of it. So you can actually have six connections through either through a ... cable that you would connect you to your standard server, whether use an Adel server or whether you're using a Super Micro server of some sort of these are standard connections.

53:33

And it comes with 2, three meter cables.

53:38

That you can connect to and but like I said, you can connect up to 6, 6 connections out of the back of this, which is actually a huge value prop, because some of our other customers that we do a lot with the in the channel only have four connections.

53:55

And I actually are, uh, one of our other big competitors as well, only carries two connections per IO module.

54:03

So, ours come with, you know, fully redundant IO modules, you have one that fails, You can pull it out, and once again, three connections on each of those.

54:11

So you get six SASS connections, which, actually, obviously, that gives you better throughput than some of our competition competitive models. Sometimes, that's not the mentioned enough as people want to add on. And they wish they had six connections, not four.

54:28

So that's a big value prop and a great question. We have 6 6 mini sass connections that can come out of the UD 60 or the UD 102 product.

54:41

Greg. So this is a question that has actually near and dear to my heart.

54:47

You used a lot of terminology and a presentation, a lot of acronyms, SMR, halo Segal, helium air, Air cooled all these different technologies. Microwave technology.

55:00

Magnetic Is there, like a central place, maybe, on your website, where we can direct people to get, from education background on what, all of these different things that you are talking about, what they are, and how we can learn more about them?

55:17

That's a good question, and I don't know that there's a one stop shop, and, and it can't, I'm the same way.

55:24

And here, I've fallen into this acronym using a word that we have, because, and it can be confusing, try there, I'm not sure.

55:34

If we actually have a, a glossary of terms, and I, I've seen that, somewhere, I don't know if that's an internal thing.

55:41

Or, if we have an external facing, I think, you know, the main things HDDs or are still HDDs. There's, there, there are new technologies that are on the horizon. Whether it was like, it's an ..., which is microwave assisted magnetic recording, that's a ways out.

55:57

I don't know that we have to worry about those from a day-to-day standpoint unless it's something you're really, really interested in. You know, HDDs are still HDD, SSD is to have different form factors, different connections and whatnot. So, you're going to see NVME, SSDS that are being connected to the NVME port, right, Close to the CPU.

56:17

I wouldn't worry too much about some of the some of that terminology. I know we can get lost in acronyms.

56:23

And I'm apologize now for using a lot of acronyms. And because I don't, I'm not a big fan of them.

56:31

I think sometimes we go revert to those just to save time and whatnot. If the folks that had the question around that, we can, we can address each one of those and send an e-mail.

56:44

Yeah, don't feel bad either, I'm in the same boat, like 10, 10 to 20% at a time. Do I just usually shake my head, yes, and act, like I understand what the, what the acronym means.

56:57

I think I'm going to say that the main that you probably didn't know is what you're saying, guys, that high, hard drive technology is evolving.

57:05

It isn't standing still, and all these things are bringing about, you know, larger capacity, more storage, and better performance.

57:13

And so maybe, maybe we don't get caught up in those kinds of things.

57:17

But just understand that, you know, these technologies lead to bigger, better, better drive, but it's still fun to know for those of us that are in the kinda tech area just to kind of put our GPS on shareable.

57:34

But let me see if I can squeeze in a couple more questions here really quick, kinda going back to the, the ultras star.

57:41

Can you, how do you connect these to multiple devices? Can you cascade these boxes?

57:51

How's that?

57:52

Essentially? Yeah, you can cascade. It gives you. I mean, it really meant to be stacked. We did a deployment, not too long ago where we actually were putting 10, 10 boxes in at a very dense rack.

58:06

And they and they all are what we would call it, daisy chain, daisy chain cascade. So, relatively simple from a connectivity standpoint.

58:17

I don't want to oversimplify it, but I've heard some people say, Oh, either, they're kind of like a big thumb drive in some ways, but there, but you're using a mini sass ... connector.

58:27

But, for sure, you know, we're, we're, we're daisy chain and 10 of these entities together that are all going up into ahead, as long as you have enough connectivity.

58:39

You can make it act, all 10 of them. Act as one box all by itself.

58:43

Depending on how use, how you set up your, your rage and such. But we call it a daisy chain. Yeah.

58:49

So you can, You can daisy chain.

58:53

Or cascade the connections.

58:55

Typically, you wouldn't need more than four.

58:58

But, but you can, you can just stack them all on one rack, essentially.

59:04

So let me go ahead and ask this, maybe this last question here, and I'm going to use an acronym in this question. So, you know, so I know you talked about this in the beginning, but maybe you can kinda cover it again.

59:19

On the FMR drives are those the availability on those is a widespread now or what's available look like on the SNR drop.

59:29

OK, another really, really good question as that is that I wouldn't really call it an ecosystem per se.

59:37

But it is It is a new products that when people are looking for the densest storage the possible at the lowest cost.

59:47

It's, it is becoming more mainstream for sure. We, once you get a couple of really big OEM guys, some of the guys that have just use the initials that we sell to, we sell product to buy the millions once They adopt technology, that it really does quickly become mainstream.

1:00:07

Once again, it's, you know, the shingled magnetic recording, or SMR does require a lift from the host.

1:00:16

It does it's not, it's not, it's not terribly complicated, but there are different performance metrics that must occur. There has to be a certain amount of downtime for it to make sense. And it has to be the absolute correct application.

1:00:30

So, we monitor, SMR drive very, very closely.

1:00:34

We don't want just some somebody to buy an SMR drive and really not know how to use it. So we've been very picky as to who receives an SMR drive.

1:00:44

We actually go through a vetting process to make sure that that is the end user or integrator understands completely what, that technology is, and what applications it's used for.

1:00:57

Because we don't want to get some something in somebody's hand and say, Wow, this, now this thing doesn't, it doesn't work with a craft, because you really have to program it properly or you have to have the host to give it instructions. This is not. This is a. This is a host.

1:01:13

Host Controlled SMR.

1:01:15

Now some drives WD Red, when we were talking about SMR earlier.

1:01:20

That is Drive, that's a, that's a drive managed.

1:01:22

Somewhere different, you know, a different beast kinda completely where it's got firmware that.

1:01:28

Tells went to Shingle, and I'm Shingle and write to it when there's downtime, But, from an enterprise standpoint, it needs to be the host needs to be able to give it instructions As to, As when went to write, it, went to write to the drive. But, it's becoming mainstream.

1:01:44

What's, like I said, once you have a couple of guys that buy, in super high volume, it is Mainstream, and it's, it's a really, it's a big advantage for, for data centers that are archiving product where you don't necessarily need the.

1:02:00

You don't need the performance metrics of SSDS, You're just archiving product, yeah.

1:02:08

National Laboratories ever using tape.

1:02:10

We've had a couple of another couple of customers at people that were using tape moving into an SMR drive just because it's, it is the closest cost point between the cost of tape and bad HDDs and a lot more reliable and it's, know, a much, much better performance than that as well.

1:02:32

Right, great.

1:02:35

Yeah, very good. So, I'm going to actually go ahead and kinda wrap this up really quick or for everybody.

1:02:43

I want to thank all the attendees for all your great questions and your participation will get all of these over to WD so they can follow up and answer the answer to the questions you asked.

1:02:55

You guys really want to thank you so much for being our cleanup hitter today for our technology on that.

1:03:01

It's been five days of presentations five separate days. And I think everything went really well. And I wanna thank WD.

1:03:09

They, been one of our longest partners for very long time. And I've been at ASI for 30 years, and I think WD has been a partner of ours for 25. So.

1:03:21

Very long partnership that we've had with WD and we greatly appreciate you guys joining us and helping deliver this information to our customers today, and Brawler customers on the line. I want to thank you guys for joining us for this.

1:03:33

For this event, we really appreciate your, a tendency, your participation, your interaction, and helping us with the questions in, and really making this on an interactive event. So we appreciate you guys joining us.

1:03:47

With that said, we do have some prizes to give away, which will be sending e-mails to those prize winners and there'll be a couple of follow on e-mail for me about this event.

1:03:59

So I don't mean to spam everybody, but there's a lot of information that people want recording, you know, URLs for the recording, and slide deck, things like that. So, you'll see a few more e-mails coming out for me, You know, take a look at them, and if you have any questions, you can always respond back to meet any of those e-mails that I sent, But do look for those for some additional announcements and updates for me aside.

1:04:23

So, with that, I'm going to go ahead and close out the session. Tyler, Guy, thank you so much.

1:04:30

I really appreciate you guys stepping up and doing this presentation for us. That was extremely valuable. Very, very informative. I got a lot of great comments here, which I'll be sending to you that you guys will get to see, but greatly appreciate your help, and your support. So, everybody, let's go off and have a great remainder of our day, everyone.

1:04:52

A wonderful weekend and, you know, Stay safe out there and, and we'll see everyone soon. So thanks again, everybody. Thank you, everyone.

1:05:02

Thanks.