ICANN69 | Prep Week – Internationalized Domain Name (IDN) Program Update
Tuesday, October 06, 2020 – 17:00 to 18:00 CEST

PITINAN KOOARMORNPATANA: Good morning, good afternoon, good evening, everyone. Welcome to the IDN program update session at ICANN 69 prep week. I'm Pitinan Kooarmornpatana. The IDN program managers will be the host for the session today. Without further ado, let's go through the agenda.

For today, we will give you some updates on the work being done within the IDN programs, and also, we have representative from the script communities to give some update on the work done by the generation panels from the previous updates. And then we will have a Q&A at the end for 15 minutes.

Okay, for the first one, for IDN program, the objective is to enable the deployment of the domain name in local languages and scripts in the secure and stable way, and for that, we've been working on it through these seven projects on both in the top-level and also in the second level. For today, we give you the updates for each of these items.

First, the root zone LGR project. In this project, the script community users come together by the LGR procedures and form the panels. It's called generation panel, which consists of the linguist expert and also technical expert to come together and define the solution how to use the script properly for the communities. And then when they finalize the

solution, the solution will be forwarded to the integration panel for the integration work.

There might be a few consultation rounds between the generation panel and integration panels, and once it's finalized, the script LGR will be integrated into the root zone and become the root zone LGR.

So for now, we have identified 28 scripts which should cover most of the languages used in the Internet, and of these 28, 26 scripts have already been taken care of by some GPs. So far, we have integrated 18 scripts into the root zone LGR, the current version is version four. A few of the GPs are at the final stage, they are finalizing the work, which you will hear the updates in this session as well.

We still have two scripts which are yet to be formed panels, and they're still working on it. So when the script is already integrated into the root zone LGR, then we will have a resource to determine the validity of the labels as well as calculate variant labels for the TLDs.

Next is the IDN variant TLDs projects. Just to recap quickly, the variant is something that the community perceives as the same, and there can be difference in definition by the communities. But when we identified that they are the same, they have to be managed as well, and this has to be managed in two ways.

The first aspect would be in the securities area, for example, in the blue glyphs here, they look exactly the same but they are different. And another aspect is the manage for usability, like the labels in orange here for Chinese. So there are two versions of the same thing. One is the

traditional Chinese, the other one is the simplified Chinese. So this has to be managed for the usability aspect.

For this project, the recommendations have been developed by ICANN Org working with communities. So the set of recommendations have been finalized in January 2019, and this has been approved by the board by March 2019. Then the board requests ccNSO and GNSO to take this recommendation into account for developing the respective policies. So currently, the policies are being developed by both SOs.

For ccNSO, the PDP for the selection and selection of IDN ccTLD string is starting now, and for GNSO, the draft final report on the new gTLD SubPro is already published and disclosed to public comments, which also includes some of the recommendation for this variant TLD implementation.

Okay, the next project is the LGR toolset. This toolset is something to facilitate the IDN table developers, so it can be used by the generation panel as well as the registry operators as well. This is the open source. We made it available in GitHub. You can follow this link, and this presentation is posted in the agenda page.

Also, if you like to use the tool online, you can also follow this link as well, so you can manage, you can create the LGR, you can manage it and also use it to verify the labels.

And then the last project on the top-level is the IDN ccTLD fast track process. As of now, we had 62 strings pass the evaluation phase from 43 countries and territories.

Moving on to the projects on the second level, we have three things ongoing. First is the IDN implementation guidelines. These guidelines have been developed by the communities, and the aim is to minimize the risk of cybersquatting and consumer confusion. This has the [binding] effect to the gTLD registry operators and is also recommended for the ccTLDs.

Current version in implementation is 3.0. The version 4 has been updated and also been finalized in May 2018. In 2019, April, GNSO made a request to the ICANN board to allow it to study the guidelines further before the implementation of the new version. So currently, the GNSO is organizing the operational track to review these guidelines.

And then on the next projects on the second level is reference second level IDN tables. For this, we developed a set of reference IDN tables in the LGR format, which is machine readable. For this, we encourage the registry operators to use this as the reference point when they decide on IDN tables. It can be used as a guideline, not for the enforcement, and this will be something the ICANN Org will be using when we review the IDN table during the RSEP process as well.

So we have published 26 already in 2016 for various languages, and currently, we develop additional 17 more, which is now currently in the public comment period. it is closing on 15 October. So if you're interested in any of these languages or scripts, please take a look and give us some feedback.

And then last projects on the IDN programs for the second level is the IDN table review tool. This is slightly different from the previous tool for

the LGR development. This one is not focused on developing the LGR, it's focused on reviewing and comparing the submitted IDN tables with reference data.

So for this, we aim that this will increase the efficiency of the IDN table review and bring some consistency and transparency to the process as well, because the two will be made available online. So ICANN Org as well as the registry operator will be able to use the tool and see the report of the review before they actually submit the table to the RSEP process.

This tool will be designed to be able to take input from three possible formats from the [older ones] and to the LGR formats. It will reveal ICANN's selected reference data, which can be the reference LGR, it can be the root zone LGR if the reference is not available. And then the tool will generate the report in HTML format so it's easy to read. So this tool is now starting the development and it's planned to be released in 2021.

That's all the update from the IDN program. Happy to take any question, but we take it at the Q&A session. So then next, let me hand over to community representatives for the updates. For the first one, I'd like to invite Hiro Hotta for the Japanese GP. Over to you, Hiro-san.

HIRO HOTTA: Thank you, Pitinan. Good morning, good afternoon, good evening, and good night. My name is Hiro Hotta from .jp ccTLD registry and chair of Japanese generation panel. I'd like to update you on the status of the Japanese LGR. So next, please.

Overview of the script and language. Japanese language usually has three scripts: kanji, hiragana and katakana. Three scripts. Characters from any of these three scripts can be mingled in any order in a word. This flexibility makes our LGR construction very difficult and has made our generation panel more than six years old. It's a long time.

We define the character sets as JIS level one and level two, which are mostly used in daily life, and it has 6000+ characters. And also, kanji is used also in Chinese language and Korean language. This also makes the Japanese LGR very complicated.

Of all the volumes, usually, all Japanese characters are regarded as different, which means that there's no variants which are intrinsic to Japanese characters. However, some [sets of] Kanji characters are regarded as variants of each other, because Chinese language and Korean language defined some variant sets. So we import variants from Chinese language and Korean language. Next slide, please.

This is the structure of the generation panel. We have six experts, chair is me, and vice chair is Akinori Maemura who is now a member of the ICANN board, and six more members. Next slide, please.

[inaudible] summary. Basic framework of Japanese LGR, which we call it JLGR, [repertoire, 6000+] as I said, and variants, JLGR itself defines no variants intrinsic to it, but the JLGR accommodates kanji variants defined in Chinese and Korean.

As to WLE, we have no WLE that is intrinsic to it. And additional issues have been raised and considerations are required, especially by IP—

integration panel. Two additional issues are big. One is the reduction of allocatable variant labels, So it means that the accommodation of variant from Chinese and Korean LGRs cause this generation of large number of variant labels for just one Japanese label.

For example, tens of thousands of variant labels are generated from one Japanese string. So it's huge. So we should reduce the number of such variant labels. So this is one issue, and the other is definition for variants caused by visual identicalness. So, as we have three scripts mingled, there are some identical looking characters exist between different scripts. So I would talk about this later, but the second issue is [inaudible] contemplated employing field research of human perception, but we have also done this field research, so I will talk about that later. Next slide, please.

Additional work done. This is the first one, reduction of allocatable labels. Any combination of characters is allowed in Japanese labels as our words in daily life can have any combination of characters. So this fact may make the number of variant strings very huge, considering that many variants are imported from Chinese and Korean [inaudible].

For example, this is [inaudible], and three variant strings. These are the ones. And reduction of the number of allocatable variant labels was required to prevent the explosion of root zone size. As I said, there are tens of thousands of variant labels. So if they are allowed in the root zone, just one TLD may make tens of thousands variant TLDs. So we have to reduce that.

So with IP suggestion, Japanese GP solved it by limiting allocatable strings by employing the notion that allocatable variant labels must consist of rarely used kanji, in Japanese, jōyō kanji. So if we do that, it reduces the maximum number of allocatable labels, one actually registered Japanese label to eight. So it's a small number. So we decided to employ this. Next slide, please.

This is the current work, which was for the second issue, visually identicalness in Japanese scripts. Some of you may know that the Unicode Consortium lists confusable characters between different scripts. It's published. For example, there are eight pairs of confusable characters in this list. for example, the first line is hiragana and katakana, they have very similar characters. We pronounce it [inaudible]. Between katakana and the kanji, they are very similar character, seven pairs of them are listed by Unicode Consortium.

So actually, if they are used in a string [inaudible], there are eight examples here. They have some similar characters in it. So current work. Next slide, please.

Yes. We do field research. So as I said, eight pairs of the single confusable characters, and we listed up eight pairs of confusable words with nine popular fonts, three font sizes, and 40 examinee. So we do very big experiment via human visual similarity, and each of the pair will be given weight one to five, one is very similar and five is very distinct.

And we have an intermediate result. Maybe this is the final result, but between the single characters, the similarity is 1.4 to 3.2. So 3.2 is

around 3, so it means neutral. Maybe similar, maybe distinct. And for a word, more similarity was found. So we may decide from these research results, these eight characters can be seen identical.

So we may define—we will define these pair of characters to be variant as a visual identity. [So, next step,] Japanese GP will define variant character [inaudible]. Next steps, we'll do it in October, so this month. So we will generate a final draft JLGR proposal and post it to the Japanese community and ICANN community, and then I hope, champagne. Thank you.

PITINAN KOOARMORNPATANA: Okay. Thank you, Hotta-san. All right. Then may I invite Kim Kyongsok to give some updates from the Korean GP? Thank you.

KIM KYONGSOK: Thank you. My name is Kim Kyongsok and I'm chair of Korean GP. Next slide, please. Next, please. This is an overview of the Korean script and Korean language, KLGR covers Korean script, and the Korean script accommodates both Hangul and Hanja. Korean script usually means Hangul, however, in the context of Korean LGR, Korean script is a union of Hangul and Hanja.

Korean language has a long history, more than 2000 years. However, Hangul was invented about 600 years ago in 1443. And Hanja was used before Hangul was invented. Hanja is still used in the Republic of Korea.

Korean language is mainly used in Republic of Korea—or commonly called South Korea—and the DPRK, or North Korea. Korean language is also used by Korean people living in China, USA, Japan, Europe, Brazil, Russia, Vietnam, and so on. Next slide, please.

This is the KGP membership. Next slide, please. Currently, KGP published KLGR version 2.1 on September 1st of this year, and it has 11,000 [symbols] of Hangul, and there's no variant groups within Hangul. There are 4758 Hanja characters, and we defined 37 variant groups within Hanja repertoire. When the variant groups are expanded, it becomes 283.

And there are special variant groups, that is, variant groups composed of Hangul syllables and Hanja characters. There are seven. Three of them are [out of repertoire] variant. I explained Hanja reporter in KLGR 2.1. This is exactly the same as in version 1.0. We made union of two sources. One is KS X 1001, and 268 [inaudible] characters are included, and the number becomes 4620. And there is another called [inaudible]. It has 4744. When we make union of these two character sets, it becomes 4758. Next slide, please.

We had public comment period from January to March 2018 about three and a half years ago, and it is summarized here. And most of the comments are accommodated in KLGR version 2.1. Next slide, please. Sorry, previous, please.

You can see the second to last bullet talks about [allowed] labels. Since Korean script is composed of Hangul and Hanja, you can consider three cases: Hangul-only labels, Hanja-only labels, and Hangul-Hanja mixed

labels. KGP conformed—there was great general consensus to allow Hangul-only and Hanja-only labels. However, KGP decided not to allow Hangul and Hanja mixed labels. Next slide, please.

On 1st of May this year, KLGR version 2.0 was sent to IP, and IP made a feedback, and on the 1st of September this year, KLGR 2.1 was sent to IP. And in version 2.1, feedback from IP was mostly reflected. Next slide, please. Currently, KGP is waiting for the IP feedback regarding KLGR version 2.1. Next slide, please.

This is a brief history of KGP activities, and you can read. Next slide, please. This is planning next steps. As I said, KGP is waiting for IP feedback, so IP evaluate the LGR proposal version 2.1, and it may go through public comment, or if IP wants to modify version 2.1, then KGP will modify and send version 2.2. to IP. This is the current plan. Thank you.

PITINAN KOOARMORNPATANA: Thank you, Professor Kim, and then next, we'd like to invite Mirjana for a Latin GP update.

MIRJANA TASIC: Hello everyone. My name is Mirjana Tasic, I'm chairing Latin GP last four years. Next slide, please.

Here is the agenda. it is the same for all presentations. Next slide, please. Thank you, Pitinan. So, Latin script is widely used in the world, and you can see here in this map that, let's say, half of the world is using

Latin script extra intensively. Those are the green parts of the map. Light green parts of the map show the countries where Latin exists with another script, and gray areas are showing the parts of the world where Latin script is used mainly use for unofficial second language or maybe for transliteration. So it posed a pretty large task to us to find a way how to solve all the problems connecting with Latin script. Next slide, please. Thank you.

Since 2016, the generation panel has seven members who are engaged all the time. We had more than 100 calls and we had three or four face-to-face meetings. Here, you can see the people working on the Latin GP. We are a good team, let's say. I will say this. Next slide, please.

What we have done up to date. First two years, we have spent developing repertoire. It was pretty difficult to decide how to choose the languages which will be included in the repertoire, so first choice was to just take the languages which have EGIDS marks one to four. Those are languages which are intensively used.

After that, we decided to include all the languages with EGIDS mark five, because those are the languages which are developing. And another criteria was to take into account all the languages which have more than one million speakers.

During repertoire development, we tested 193 codepoints from MSR2. We found some codepoints which were not included in MSR, so we proposed at least six codepoints will be included in MSR, and those codepoints are accepted by IP. And at the end, we also identified 22 codepoint sequences which were also included in our repertoire.

When we finalized developing repertoire, we started developing variants, and next two years, it took us two years to be pretty close to the end of our work. So, cross-script variants was not so difficult to define, although we had the previous work of the corresponding panels, but with in-script variants, it took us more than one and a half year to develop first the methodology, after that, to process all the characters which could be, let's say, in-script variants, and we have now finalized these script variants also.

During our work, new ideas emerged. For example, we have analyzed HTML link underlining, IDNA 2003 compatibility, and also, generic glyph analysis, we have completed. So you can see last version of the proposal to IP was submitted in October 2019, and from that time, we are working on finalization of our report. We are now very close to finalize it. Next slide, please.

What we are doing now, We are finalizing the complete eversion of the draft report for submission to IP. The report is about 80 pages, and all our work is presented in appendixes which have more than 100 pages. We have [inaudible] product test dataset and you can see we have done it partially. We have to produce XML and check the production of XML.

Also, during last investigation in that data production, we found that some languages also with more than a [million] speakers has some glyphs which could be also added to MSR. We have to consider it and to propose them—to put them in the repertoire. And we expect that at the end of this year, we shall submit first complete draft version of the report [waiting for comments.] Next slide, please.

So, this is the plan for our next steps. It is not so easy to make exact plan when the Latin GP will finish all the tasks, but it seems pretty ... We can say it is almost to the end. We are somewhere at the end, and we probably will finish our work by the end of June 2021. Thank you.

PITINAN KOOARMORNPATANA: Thank you, Mirjana. Next, I'd like to invite Yin May Oo to give some updates from Myanmar GP. Over to you, Yin May.

YIN MAY OO: Thank you, Pitinan. Hello, everyone. I hope you have a good time. May I start the presentation, please? So we are going to explain what is the overview of our language, and summary of the progress and next steps. Next slide, please.

So, Myanmar script is used in Myanmar, currently. Formerly, we were called Burma. And the same script is used for many languages in the region, mainly the Burmese language, and then Shan, Rakhine, S'gaw Karen, and Mon, and Pa'O Karen.

So, there are languages which use exactly the same characters as Myanmar, but only the pronunciation difference [inaudible] changes in the way they spell other words. But there are other languages like Shan and S'gaw Karen where they share only some parts of the characters, same as Burmese, but they also have their own characters and their own way to write the words.

So, we have like 98 characters in the repertoire, around 50 of them consonants which can stand alone and we have more than 30 characters which are going to be attached to the nucleus, the consonant, and they form various pronunciations. So we have quite a lot of spelling possibilities to consider. So that's from where we started. Enter now, we [consider] rules for the Burmese language also for Rakhine, Shan, Karen languages, and Mon. Next slide, please.

So, when we analyzed the increase in script consonant, in script variants, we consider one consonant or a language could be a different spelling for another language. So, one character, one codepoint character in S'gaw Karen can become a combination of two glyphs in Burmese, and visually identical.

So when we consider about in-script [variants,] we look into visual similarity and we omit the ones which are semantically similar. We have talked with native speakers of the different languages like Shan and Mon, and we consider what are the spellings that are possible and which are the ones that are likely to go wrong when we spell a longer word, longer generic word, and for the ones that are not very likely to clash visually are moved to confusable.

We still have some level to consider, but we only focus more on facial properties. Next slide, please. So, most of the in-script variants are standalone characters which can stand alone but still be confused with other combined characters, and we have two sets of variants which can be attached to the consonants. One is the [power E,] which are semantically the same, also visually very similar, like this, one line in the

middle and one dot in the middle. So we note that these two are still considered variants but there are other signs that can become variants, but we move it to consonants. Next slide, please.

So, after we set out the in-script variants and in-script confusables, we move on to cross-script variants. When we check about cross-script variants, Myanmar has very similar characters with Georgian, so we list them, also with [inaudible]. Next slide, please.

And for Malayalam, we omitted the ones which Malayalam GP say which is not likely to be label, like the character with opening on the bottom. So for that character, also, we just listed as confusables. And f or the other languages, we have the same character which his the full circle and totally round. So [we test the possibility that we can still form] a label only with this one character, or either two or three characters continuously. Since it is possible in Myanmar, we just list them as variant with the other languages as well. Next slide, please.

Here is the [inaudible] of confusable codepoints. Most of them are invalid combinations and some of them are semantically similarity from other languages that use the different form of character which means the same but they choose to use different [inaudible] for example. So we still list them down, just to note that it could still be synonym or homophone. That's about the list of confusables that we have for our script family. Next slide, please.

When we implement the WLE rules, we have to consider all the groups of characters. Normally, we generalize like for this consonant, what are the dependent vowel and what are the [inaudible]? But actually, when

we went to look into details, there are more. So we tried to check [inaudible] differently because we did consider the underline previously. Now, we move on without considering the underline for our complex script, so we have simplified some of the rules. We have medial combinations for Myanmar script, but medial can happen to be more than one, and [inaudible] that they all attach to one consonant together, they need to follow certain orders and rules. So we have to define sequences and we have specific rules for how they are formed. Next slide, please.

So, this is one example of how we're trying to explain and brainstorm about how we're going to allow and disallow some of the combinations that are not supposed to occur. When it comes to [LGRs,] the most complicated case is for Burmese language, we used medials more than once when we form one spelling. So the medials have to follow the specific order so that they don't form ill-formed grapheme or they don't overlap and cause disappearance of one or another. So at first, we have to define what are the rules, what is the order that they follow, and also, what are the sequences that go with certain consonants. And there are consonants that just don't happen to combine with some of the medials completely just because overlapping these two graphemes has never happened and also, there is a risk that it can become ill-formed grapheme or it can become something else.

So we just map out how the medials were formed with all the lists of consonants. Actually, the table below is just a small part of it. We have a huge table to analyze if it is this consonant, 1014, then what combination of medials can still happen with this character? So when

we look at the list, character 1014 and 1019 has all possible combinations. The ones in color white are the spellings that we usually see in generic terms, and the ones in green color are the combinations that have pronunciation but we still—although we are not sure that there are [inaudible] going to happen with these spellings because they can have pronunciation, we still consider that some names can have this spelling, so we just let them combine. So we only block away the combinations which are marked red, so we want to block them out just to be safe for all the labels. Next slide, please.

So, we have come up with a set of sequences defined. Some combinations only follow a set of three or four consonants, so they are defined as sequences for those who can combine more consonants. For those which can happen more common, we set them as this set of consonant can follow certain type of—this set of medial can follow certain type of consonants. So rule three is all about medials, and what we improve with rule number eight, the other rules, is all the tone marks and we tried to simplify them also so the rules are not so complicated.

So that's our work from 2018 until now. For next steps, we will wrap up and submit a fourth draft of our proposal to IP, then we want to release for public comment next month in November 2020, and we want to finalize and submit before 2021. That's about it. Thank you.

PITINAN KOOARMORNPATANA: Thank you. Thank you, all the presenters. I think now we're open for Q&A. Sarmad, do we have any from the chat?

SARMAD HUSSAIN: Yes.

PITINAN KOOARMORNPATANA: Or if you'd like, please raise your hand.

SARMAD HUSSAIN: So, we actually have a question from Bill Jouris for the Japanese generation panel. He asks, will kana versions of kanji that is alphabetical rendering of character be considered variants?

HIRO HOTTA: Yes. For example, the character which is very similar to—for example, a katakana character which is very similar to a kanji character, they look very similar and we will make them variant.

PITINAN KOOARMORNPATANA: We have Bill's hand. Would you like to come in?

BILL JOURIS: Yes. That wasn't quite what I meant. What I meant is, if you, say, take the word Nippon, it can normally be written with kanji, but it couldn't be spelled out in katakana. Thank you.

HIRO HOTTA: Okay. They are not variants.

SARMAD HUSSAIN: Thank you. So we have another question from Raymond Mamattah. "From the look of things, is the IDN really feasible? Because it looks like characters that are similar across languages could also be similar in other countries." Would anybody from the Panel in the community take that?

PITINAN KOOARMORNPATANA: Mats, please go ahead.

MATS DUFBERG: Yes. Thank you. This is Mats Dufberg from the Latin GP. I don't think that we should expect the IDN solution to be perfect and without any problems at all, because that is not how languages and writing works. But the other position that we refuse to implement IDN is probably worse, because that risks splitting DNS into different regions where they use different sets and [trees.] Thank you.

PITINAN KOOARMORNPATANA: Thank you. We have Michel. Is that a follow-up?

MICHEL SUIGNARD: Yeah. I was going to say that if you have labels with characters that are similar across languages, that's the whole point why we do variant sets, is [to keep the plugs in] so you don't get—if you get first come first served, if you're the first one to ask for a label and that label is

confusable across languages, [you're the one who'll be blocked] by default. So we can do some case where you do allocate variants, but the rules to allocate variants are pretty strict. You have to have some condition, otherwise, you get like Hiro Hotta said before, that you could have thousands of variants if you allow them to be allocatable.

So you always, by default, block variants. So it's okay, in fact, to have similarities across languages, because we have a mechanism to address that. by the way, Michel Suignard from the integration panel.

PITINAN KOOARMORNPATANA: Thank you, Michel. Let's go to the next question.

SARMAD HUSSAIN: We have a question by [inaudible]. The question is, "In IDN variant TLD, there are two region pointed with two color, orange for usability and blue for security. My question is, what exactly pointed for other region color which hasn't mentioned, or what exactly happening in security?"

PITINAN KOOARMORNPATANA: Let me answer that. I guess on this picture, actually, the regions in the map is more like ... color of the countries is actually not relevant, I guess if that's the question. And in this one, it's just to distinguish the two types of variants in the security issues and the usability issues.

So for the security, if you see these two blue, [EPIC], and the other one is look the same, but if you look at the codepoint, it's basically a totally

different one. So the first one is not the [E] from Latin codepoints anymore, it's the lookalike [E] from Cyrillic and so on.

So to the user, we cannot distinguish, right? But if these two happen to be in the root zone at the same time and it makes the user land on a different page, this is something very risky. It can be used for phishing or just to create confusion to the users.

Of course, it's not easily happen because this is the root zone, but this is something the community is trying to identify these cases and manage. Not sure, would that address your question, [inaudible]? Okay. Thank you.

SARMAD HUSSAIN: No more questions in the chat.

PITINAN KOOARMORNPATANA: Okay. We have a few minutes left. Anyone want to make further comments or a final remark? The mic is open to you all. Okay, we see some active discussion in the chat. Would you like to speak on the mic? Mats, please.

MATS DUFBERG: I want to comment that the variants that are created for the root zone, they will of course not capture all possible similarities there is, because it's a grayscale between absolutely distinguishable and absolutely identical. And somewhere, we have to draw the line. But for some people, the line is too much to the absolute identical, and for some, it

could be moved even further. So there's always risk of confusion, depending on your background and fonts, etc. Thank you.

PITINAN KOOARMORNPATANA: Thank you, Mats. Okay, so with reached the top of the hour, so I guess we can conclude the call. Just a final remark. Thank you all for joining and have interest in these topics. Please keep an eye on the work from the GPs, from the communities, which will be coming out in the next three to six months as they update it. And thank you all. Hope to see you all in the next update. We can stop the recording. Thank you.

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