**Agendas:**

1. Introduction [Young Lee, 5 minutes]

2 Global Load Balancing Strategies: CSO for Application and Optical Network Resources (Hui Yang, BUPT, 10 minutes)

3. A simple ILP Simulation for CSO Joint Optimization (Ning So, UT Dallas, 10 miniutes)

4. Functional architecture for dynamic and on-demand service provisioning with cross stratum optimization (Oscar Gonzalez de Dio, Telefonica, 10 minutes)

5. Problem statement and requirements for Cross Stratum Traffic Resoruce Control, Management and Automation )(Tae Sang Choi, ETRI, 10 minutes).

[other presentations]

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**1. BUT presentation (Hui Yang)**

[David Dysan} Was the graph based on alpha or beta? This is excellent research work beyond the architecture.

Young Lee: It is the alpha.

Sit he Beta factor.

[David]: Alpha is a function of Beta. I was trying to understand the effect of B. I’ll take it to the mailing list to discuss the exact formulas for Beta.

**2. UTD Presentation (Ning So)**

Lars: Does this mean the red goes the data center?

Ning: We assume that any of these applications can be hosted by any three of the datacenters. When you decide to put the user running into the data center. The node number is the number in the circle.

Lars: What is the number on the arc?

Lar: What if 31 logs onto 10?

Ning: For the network based solution, you can

Lars: Where does the order come from?

Ning: The order comes from the shortest path?

[Edward Crabbe:] It is a weird hop count graph. [missed

Edward Crabbe: Are these edges not arcs. Do they have uniform data capacity? All links have uniformed data capacity.

Ning: We assume you fixed bandwidth.

Lars: Why do you believe that anything for this contrived solution will do anything for the non-contrived solution?

Ning: This is a theoretical study.

Lars: We do not do graph theory in the RRG.

Edward Crabbe [google]: This a well-known [missed] solutions.

Ning: Some people feel that this solution is not solved.

[Returned to the slide set].

Ning: It is a simple solution that does not mimic real life. We feel that this problem can be expanded to be listed to the other studies.

Ning: If you have anything else to add to it we welcome the feedback. We used the initial case for simplification.

Edward Crabbe [google]: The rocket [xx] or xxx [missed] should be used for the next. You should have meta data and external control. You are not talking about network mechanisms or a specific algorithm or protocol.

Ning: Certainly, this can be expanded to another work. Do you have a suggestion on a specific next step?

Lars: I think that you are showing that a simple example that makes it tractable. What you can add or many to find a solution that is tractable?

Ning: We will take solutions that add to this.

Lars: It is important that any research group has a chance to make progress on a specific line. Do you think any particular piece that has a potential work working well?

Young: We are trying to find a valid this here. Do you have a suggestion?

3. **Functional architecture for dynamic and on-demand service provisioning with cross stratum optimization**

Oscar: I am presenting n behalf of my colleagues. If you have questions, please let me know.

Lars: This is a very high level. Walk me through an example. I am a start-up and I have a application to photo sharing. I want to have my application working on EC2.

Oscar: In this framework, the framework for the photos is stored in many places. You do not have a way to have this.

Lars: I run the service for the photo services, and I want to make CSO to make this interaction better.

Oscar: You want to optimize the photos.

Lars: You say you use CSO and it predicts and you put it there.

Oscar: yes, you place it there.

Lars: what happens when you get successful in the US, and you need to move your storage. What happens then?

Oscar: You will have a recalculation based on the information.

Lars: This is a lot of information.

Young: This is one of the research issues. You have a valid point to Lars a

Edward Crabbe, [google]: This is too high level to be useful. A unicorn flies in and makes everything better. You need to get more detailed in your results.

Oscar: You have a valid point, and this research needs to be more specific in the architecture.

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**4. Problem statement and requirements for Cross Stratum Traffic Resoruce Control, Management and Automation )(Tae Sang Choi, ETRI, 10 minutes).**

**Discussion:**

[Dave Dysan] 1. What I the time interval over which this occurs? This use case came up in connex (spelling) use cases. Can you cross post? Is this use case data is heavy user over time or short term time.

[Tae Sang Choi]: This is the long term data.

[Dave Dysan]: If you have short-term data that matches this long term useful it would be helpful.

[Kou-Youl Park]: We have measurement for the short term. It would be useful to have the short term statistics and the long term statistic. It would be very useful to publish this statistics.

Lars: Could you get to the point where Cross Stratum will fix this problem?

Tae Sang Choi: Certainly. All the of the issues reduce to a set of requirements. These requirements show the CSO benefits.

[slide set at Requirements]

Dave Dysan: I have a question on the previous slide. Would the resource control have a better management for the [missed] would improve the picture company?

Tae Sang Choi: (missed comments)

Dave Dysan: This set of algorithms could help reduce this out of the “unicorn” problem that Ed mentioned, and solve your problem of having the revenue be less than the cost.

Tae Sang Choi: Yes, and we need to understand specific constraints.

Dave Dysan: Is this a potential answer for your question Lars?

Lars: No

Dave Dysan: Then I did not understand your question?

Lixia Zhang: I have seen this dramatic increases on wireless traffic. This graph was to motivate another research to reduce the motivation of the traffic pattern. [missed comment]. I wonder if this helps reduce [missed comment] What is your bottom line? How do you manage the resources by limit the requirements.

Ning So: The Quality of user experience shows that without increase of resources improve the user resources or network resources, your balance can help you improve the resources.

Lixia Zhang: Here we are not suggesting user quality of experience.

Tae Sang Choi: This is not constrained for the Data Center Environment. It is for the network at wide.

Kou-Youl Park: Your point is good, [missed comment] can reduce via CDN. We have a different set of business models that require manage both hosting resources and network resources. So we need some framework like CSO and SCM.

**Calling the question**

Ning So: How many people feel this research valid? (about 20 hands raised which is about ½ of the room).

Ning So: How many people want to work on this research? (about the same number raised their hands).

Lars: I will not charter a research group. It is not converging on the research. It is very confused. There is nothing dealing with QOS and squeeze things the network. If you would over provision, it would work. It is complex and not useful.

Young: We have to start somewhere.

Ed Crabbe: There is a valid problem in this space.

Lars: There is not a valid problem space as described this group.

Ed Crabbe: There are large communities in the Data Centers working on problems in this spae.

Lars: I am willing to view this proposal. I do not see that it is something productive.

Ed Crabbe: I see a lot of things are architecture. If there are research topics that are in this space, it would be useful.

Lars: I am willing to try this tact later. I agree that thare are problem later. In the research groups that work best are the ones that have a problem.

[Kou-Youl Park, KT]: We are talking about hurting. It precisely the lack of interaction between the two points.

Lars: what is the example?

Diego: I can move to a single cloud provider or go to another type of cloud providers.

Lars: This is the “I want to add this thing to architecture”, then I want to know it works. The data Center area is the cloud

Ed Crabbe: I think that the data center cloud research is useful..

Lars: I think the time is right for a data center research group. I think that this is a different type of work.

Ed Crabbe: I am very simply and motivated by money. I see as little as 5-10% percent improvement this is lots of input.

Lars: That research is light weight and provides hopeful research and useful information. This research is heavy weight and provides little information.

Ed Crabbe: We can talk afterward about my research ideas.

Lars: We can talk offline.

Oscar: We can talk about the use cases that have

Lars: Let me stop you, the first step is the users and the data centers.

Oscar: The optimization is looking at the optimization at the data center and usage. This is the full internet that we are working on.

Lars: There is something interesting hear I would continue.

Ed Crabbe: I am going to PCE and do something that application that will work. I think there is a ton of unsolved problems.

Lars: I think that someone would come up with a set of research problems in Data Center area, but this does not represent any focused piece I feel useful.