

Connectathon 2015 Report

December 20/ 2015

IHE-Japan Association, Testing & Tools Committee

1. Connectathon date and the place

Connectathon date: September 15 (Tue.), 2015 to September 19 (Sat.), 2015

The place: Tokyo Metropolitan Industrial Trade Center



Fig. 1 Information board of Connectathon site

2. Connectathon participating

2.1 Participants of venders

47 companies (including 5 supportive companies),
82 systems (including 7 supportive systems)

2.2 Participants of monitors

Total 55 persons

This year, monitors had been called for in a positive manner from outside of the Association, and total 6 doctors and technicians besides the members of Testing and Tools Committee and each domain implemented the testing.

3. Connectathon management

3.1 Server management

Similarly in the last fiscal year, Global Labo (GL) took the lead and managed the server for Gazelle, Transaction Monitor (TRM) and the related application.

3.2 VPN management

Digital Sensation (DS) took the lead and supported venders who wanted to participate in VPN.

3.3 Inquiry management

Machihiro Inc. provided Connectathon management tools for set up of the environment and dispatched staff members for explanation of the operation and the primary responses to inquiries on troubleshooting.

3.4 Network environment management

In the same way as in the last year, we asked Cisco Systems GK (hereinafter called Cisco) to arrange and set up wireless LAN and routers. Cisco and GL cooperated to response to the troubles such as IP butting etc.

3.5 The secretariat, the hall management

We asked Quantum Inc. for arrangements of facilities and so on in the hall. The secretariat works for various liaisons were performed by the Japan IHE Association.

4. Domain for testing

The following 7 domains were opened this year. For the target profiles, please refer to the Connectathon result table.

- RAD: Radiology
- CARD: Cardiology
- LABO: Laboratory
- END: Endoscopy
- PCD: Patient Care Devices
- ITI: IT Infrastructure
- RO: Radiation Oncology

5. Schedule until Connectathon

As for the management of Connectathon by using Gazelle, the procedure has been established by Connectivity Verification Committee, and the preparation works were made according to the schedule shown below.

In the table, VWS indicates the Vender Workshop (briefing session for venders), the periods with blue background indicate the periods during which Gazelle servers had been presented to external public, and the period with red background indicates the Connectathon period.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4/20	21 VWS1	22	23	24	25
27 Start of entry registration	28	29	30	5/1	2...
25	26	27	28	29 Deadline of entry	30
6/1	2	3 VWS2	4 Distribution of prior verification tools	5	6
8 Start of prior registrations for: - Users - Corporates - Systems - Verification logs	9	10	11	12	13
7/27	28	29	30	31 End of prior registrations	8/1
8/10	11	12	13	14 End of prior verification -Deadline of presentation of logs	15

17	18	19	20	21 Assignment of IP address	22
24 Check of settings: - Re- presentation of the servers - Confirmation of IP - Confirmation of contents of registrations	25	26	27	28	29
31	9/1	2	3	4 End of settings check -Stop of servers	5
14 Packing of servers and transportation	15 Start of the hall verification: -Installation of servers -Setting up of the hall -Start of connection test	16	17	18	19 End of the hall verification: -Completion of connection test -Dismantling works -Carrying out of servers

This year's Connectathon was held in September in the same way as last year and the works had been carried out in accordance with the above schedule.

The briefing session for mounting venders was held twice. This was the same as last year. In the 1st session (April 24), the operation policy of this year's Connectathon and the guidelines for applicants were explained. In addition, the outlines of the target domains and the scenario, the Connectathon operational management system including Gazelle, prior verification, and VPN participation were also explained. The registration for participation so far summarized with Excel in the past has been changed to be processed with a Web system from this year, and this was also explained.

In the 2nd session (June 3), briefing session for all venders applied for Connectathon was held. The prior registration to Gazelle, the prior verification and the detailed screening criteria in each domain were explained. The briefing session on operation of Gazelle presented in past years was not held this year, and the newly participated venders were followed separately by e-mail and telephone.

The public presentation of the Gazelle server was made twice, that is, at the times of registration and the check of settings. As the 1st time presentation was for the prior registration of users, systems and systems settings, it was disclosed. The settings for the venders who participated also in the last year had been succeeded as they were. During this period, up-loading and testing of the prior verification logs were performed in parallel. After assignment of the IP addresses for the registered systems at GL, the second public presentation of the server was made and this was the period for final check of the IP addresses and system registrations.

As for the prior verification, pre-connection function of Gazelle was used as the same as last year. Up-loading the prior verification logs from the prior tool verification into Gazelle, monitors checked them. There were some troubles due to defective scenario for prior verification and defectiveness in Gazelle settings, etc., and could not up-load the logs. But those troubles could be resolved in the early stage.

6. Management during Connectathon

Date	Contents of works
9/16 Tue.	AM9:00 ~ Power supply, network setting up, carrying-in/starting of servers PM15:00 ~ Starting up of Connectathon
17 Wed.	All day long: Implementation of connection test (9:00 ~ 17:00)
18 Thur.	- Responses to inquiries
19 Fri.	-Troubleshooting (servers/network)
20 Sat.	PM15:00 ~ Shutoff and carrying-out of servers

As for the management system during the Connectathon period, please refer to item 3, Connectathon management.



Fig. 2 Testing Hall of Connectathon

7. Responses to Connectathon inquiries

The inquiries received during the Connectathon period can be classified into 4 major groups, and the phenomenon, the causes and the countermeasures are as follows:

7.1 Defective communication to Transaction Manager (TRM) proxy system

A Phenomenon

The communication between systems was trouble-free, but when it was changed via TRM, the logs could not be displayed.

B Causes

- The settings of IP addresses on the carried-in systems were those set for their own companies and not those registered in Gazelle.
- When TRM are connected, the default gate way shall be changed to 255.255.252.0, but had not been set.
- In the hall, battings of IP addresses arouse to cause communication troubles.

C Countermeasures and issues

As for the defective settings of systems, the vendors concerned were asked to re-check them. In addition, it was studied whether IP addresses were overlapped or not, and overlapping found were announced officially. Even after the announcement, if the overlapping were not rectified, the IP addresses were changed and tested.

7.2 Defect acquisition of Web service log

A Phenomenon

As for the communication protocol Web service, communication is set up via TRM, but the log is not acquired.

B Cause

Investigation by the developer (DS Inc.) is requested and performed, but the cause could not be clarified during the period. The study performed after the Connectathon revealed that the cause was the bug in the TRM.

C Countermeasures and issues

As for the communication via Web service, acquisition of logs via TRM was given up in the Connectathon hall, and the logs were uploaded with a function attached to a step of Gazelle at each vender. The monitors downloaded the uploaded logs into PCs and monitored them.

As for the bugs in TRM, these have been asked to be rectified by the Connectathon next year.

7.3 Defective operation of Gazelle

A Phenomenon

Specifically on the 3rd day or later, the response of Gazelle decreased seriously. There were many occasions when its behavior ran off the rail such as the settings of judging powers and target domains of Connectathon did not work well.

B Causes

The cause of the degradation of responses of Gazelle was found to be the bugs in EU Connectathon version. Causes of other behaviors have not been found yet.

C Countermeasures and issues

During the Connectathon period, when the response degraded, the server was restarted. There was a report that the bugs had been rectified in the latest version, and it is understood that the latest version will rectify the phenomenon.

As for the settings of judging powers and target domains of Connectathon, at every time of pointed out during the period, settings were added manually to counter the problem. The primary causes are still unclear, and the developer has been asked to investigate them.

7.4 Unclear criteria for testing

A Phenomenon

One monitor was asked a question and test was performed based on the reply from the monitor. But another monitor pointed out that the reply was not appropriate.

B Cause

As the newly selected monitors from public applicants jointed this year and they were doctors and technicians working in fields, there were patterns to check from

the points of filed needs. As for the specifications covering over domains, there was no sharing of them among domains and generated some confusion among venders. Also, among venders, there were some cases in which the functions of system and the functions of actors were mixed up, and this might had caused by shortage of understanding in venders' side.

C Countermeasures and issues

When venders pointed out the difference of monitor's opinions on one point, the differences were adjusted among monitors and they communicated with the venders on the right judgment asking them for countermeasures. When venders had poor understanding, they were given instructions to improve the understanding of the meaning well and were urged to deepen their understanding.

Checking by monitors selected from public applicants is thought to be essential to disseminate IHE. However, it is necessary to provide those monitors with education and standardize the monitoring level from next year.

8. Results of Connectathon

The results of Connectathon are summarized below:

8.1 About management of validation tools

This year, the memory capacity and CPU of the rectification tool servers had been enhanced for the Connectathon. However, deterioration of response of Gazelle and faults of operation occurred frequently in the 2nd and 3rd days when the load on the servers became the peak. As the developer has reported that the bugs in EU Connectathon version Gazelle were the cause for the deterioration of response, it is understood that the trouble could be resolved when the latest version will be applied. In addition, faults of operation occurred due to the deletion of Connectathon's target domains to be set by the administrator from any cause, and the situation was that no test could be started at venders' side. The cause for this point has not yet identified, and GL and the developer are investigating the causes.

As for the TRM, there happened a phenomenon in which logs of Web service protocol could not be acquired. Gaining approval from the person in charge of IT infrastructure domains, it was addressed that the communication logs were attached to the appropriate steps of Gazelle test instances as they were. To make this judgement, it took a longer time for investigation to have influence on the progress of tests by venders. After the Connectathon, the developer reported that the cause was bugs in the TRM. It has been now asked to rectify the bugs, and it is planned that the latest version will be applied as soon as the rectification works will be completed.

During every Connectathon period, a number of questions and inquiries on faults of communication of TRM had been posed. The most of them were based on the mistakes of settings of IP addresses and default gateways. When the cause is other than these, it will take rather longer time to investigate the cause. Though it is premises to investigate the cause and to find a solution, it is also important to switchover to an alternative considering the total progress of test when investigation for a given length time could not solve the trouble. It would be necessary to study the response to inquiries and the investigation after inquiries from next year.

8.2 Connectathon testing

This year monitors were recruited in a positive way from the public applicants. Making contact with associated organizations, six doctors and technicians in fields were recruited

as monitors. Those monitors have been provided with education on the procedures for log checking using Gazelle and monitoring criteria by persons in charge of each domain in advance. On the days of Connectathon, they corresponded positively not only monitoring of tests but also anything found unclear and questions from venders. Understanding that doctors and technicians in fields had been examining, venders could approach tests with elevated motivation. Those recruited monitors participated in this Connectathon have reported that they could see the effort of venders to pass at this Connectathon, and the fact served as a considerably useful reference. The approach was deemed to be very productive for venders and also the monitors.

However, the monitors recruited might monitor from a standpoint or need on sites, venders, monitors of the Association and the monitors recruited met frequently on contents of checking and responses to questions. Regardless of the monitors from Association or recruited, results of testing might differ on each point of monitoring. It was recognized that upgrading and expanding of monitoring criteria, statement of the monitor point, and education for the monitors were very important. As for the monitoring criteria, digit number of time scale and character set at implementation are common regardless of domains. But there are descriptions of monitoring criteria of each domain, and there is one problem that this is bothersome especially for venders who participated for plural domains. So, it is understood that preparation of a common version of the monitoring criteria may be helpful for the common specifications among domains.

It was also found that cooperation for monitoring criteria not only in Japan and among domains but also with NA and EU is deemed necessary. A vender who participated in both Connectathons in Japan and abroad made a declaration that they had passed in the Connectathon abroad. Getting to know more about the acceptance criteria abroad and reflecting them to the monitoring criteria in Japan, they should be taken into the check points at testing.

8.3 Test result

As for the test results, they were checked in the Connectathon result screens of Gazelle for each domain by October 13 (Monday) when a final judgment meeting after Connectathon was held, and acceptance or rejection at the participated domains and actors of each vender were entered into Gazelle. In the meeting on October 13, the results above were finally confirmed, and confirmation of systems of all venders could be completed in about 3 hours.

Then, Gazelle servers were released to venders, and they were asked to confirm the results. One miss-work was found in circulatory organ domain and pointed out by a vender. In addition, there were some clerical mistakes and a requirement to add link to Integration Declaration. Therefore, the final results were drafted after giving corrections and adding post scripts. This final results was published on the home page of Japan IHE Association on November 11 (Wed.).

8.4 Connectathon questionnaire result

As same as last year, the questionnaire about the management tool of Connectathon and the management itself were distributed to the venders and the monitors on the last day asking their cooperation. This questionnaire was anonymous survey to collect participants' honest advices, and useful advices for the management of Connectathon after next year could be collected. The number of questionnaire collected was total 77 comprising 59 from venders and 18 from monitors.

As a result of the questionnaire, the degree of satisfaction about the operability of the tool is 2.56 in average in five step evaluations and the level of usability of Gazelle and TRM can

be assumed to be at normal level. In free response question, however, there were many indications of the lack of stability of tool. As for the questions about confusing in operation of Connectathon management tool (selective, multiple selection acceptable), there were many advices about the system management and the setting of the system management (11 venders and 9 venders each). In addition, there were comments that the contents in the chat room should be confirmed in the main page. IHE International Eric team would be requested to improve Gazelle, and the TRM should be proposed as a development requirement of maintenance of this year.

As for the Connectathon management, comments on the significance of holding of Workshops and transmitting method of information were invited. This year no briefing session was held and the inquiries from the new venders were responded by separate e-mail or telephone. In the questionnaire, there were many comments that the briefing session on Gazelle should be held for the first time venders (31 venders) and comments that Workshops and briefing sessions should be recorded on video and to be disclosed (open question). As the improvement measures for management of Connectathon, these would be set out to realize in the Connectathon next year and later.

The mounting requirements and mounting experience of IHE were also asked. As for the mounting requirement, 39 % replied "Yes", and the frequency was in most cases about 20 % for all items. As for the mounting experience, 32 % replied "Yes". These will implies that promotion activities of IHE at hospital side and also promotion activities of IHE mounting at venders' side are deemed necessary to be set forward more than ever.

The end of the report