

Technology Service Management and Incident Response Performed by Technology Call Centre of the Tokyo 2020 Games

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The Olympic and Paralympic Games Tokyo 2020 followed the management process based on ITIL® to provide technology services to Games stakeholders, in line with past Games. In particular, regarding the quality of services, we defined unified SLAs for various types of services to provide a quick response to important events, such as competition management. In addition, we set up a Technology Call Centre to serve as a contact point for technology inquiries from Games stakeholders, who were the equivalent of customers, to achieve uniformity of response and improve response quality through centralized management.

Keywords : Tokyo 2020 Games, Service management, Incident response, Call centre

1. Introduction

The Olympic and Paralympic Games Tokyo 2020 (hereinafter referred to as the “Tokyo 2020 Games”) were held over approximately one and a half months, featuring 55 sports and 878 competitions. This is an unprecedented scale for a sporting event. This article provides an overview of the service management and the incident^(Terminology) management of technologies that supported this large-scale event.

2. Technology Service Management at the Tokyo 2020 Games

Approximately 400,000 people involved in the Tokyo 2020 Games, including athletes, officials from national and international federations, broadcasters, media and press, participated in the Tokyo 2020 Games both before

and during the Games. To provide high-quality IT services and appropriate incident response for these customers, we adopted a management process based on ITIL^{®(Terminology)} for the Tokyo 2020 Games, just as in past Games. Specifically, the Technology Functional Area (TEC FA), which is the operations department for IT services, was structurally divided into three tiers. The first tier was the Technology Call Centre (TCC), which served as a single point of contact for all IT-related matters and accepted inquiries by phone and e-mail. The second tier consisted of venue IT teams assigned to approximately 190 venues, facilities, and bases of various sizes, such as competition venues, to provide face-to-face support to the Games stakeholders and operate actual equipment, such as problematic target equipment. A Technology Operation Centre (TOC)⁽¹⁾, which controlled the entire Games in terms of technology in cooperation with the first and second tiers, made up the third tier (Figure 1).

Next, we classified operational incidents according to severity levels : Severity 1 to Severity 4 (the smaller the number, the greater the severity), depending on the degree and scale of the impact. For example, issues that

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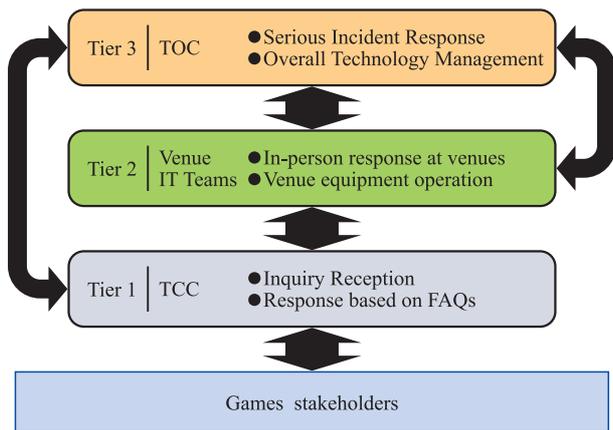


Figure 1 Hierarchy of IT Service Operations

affect all users, incidents that force suspension of competition or incidents that are covered in live broadcasts and news are classified as Severity 1. As a Service Level Agreement (SLA)^(Terminology), we set individual response time (time taken from receiving an incident inquiry to the first contact with the user) and resolution time (time taken to resolve the problem, including interim measures) targets for each severity level. We standardized the SLAs so that they were determined uniformly by Severity level only, irrespec-

Terminology

Incident In ITIL®, an incident is usually defined as an event that affects business continuity or users due to an outage of IT services/IT systems or deterioration in service quality. At the Tokyo 2020 Games, in addition to these incidents, user requests for the use of IT services/IT systems were also treated as incidents under the term “Service Request”.

ITIL® Information Technology Infrastructure Library. Information Technology Infrastructure Library (ITIL) is a set of books that systematize best practices in IT service management. It is the basis for the international standard ISO/IEC 20000 (JIS Q 20000 in JIS).

SLA Service Level Agreement. An agreement between a service provider and its users regarding the level of service (definitions, scope, content, goals to be achieved, etc.).

CTI Computer Telephony Integration. Integrating computers with telephones, PBXs (private branch exchange), and other telephone-related equipment improves the efficiency of call centres and other facilities.

IVR Interactive Voice Response. A system that provides a pre-prepared voice announcement for incoming calls to a call centre or assigns a response to an operator by having the user enter a number corresponding to the reason for the incoming call.

Table 1 SLAs Applied at the Tokyo 2020 Games

	Critical Period		Non-Critical Period	
	Response Time	Resolution Time	Response Time	Resolution Time
Severity 1	5 minutes	1 hour	5 minutes	4 hours
Severity 2	5 minutes	2 hours	15 minutes	6 hours
Severity 3	30 minutes	4 hours	1 hour	2 days
Severity 4	1 hour	6 hours	2.5 hours	3 days
Service Request*	1 hour	8 hours	8 hours	5 days

* “Service Request” classifies requests that do not involve problems such as failures.

tive of the type of service or target user. In addition, as an arrangement specific to the Games, the period during and immediately before the Olympic and Paralympic Games was referred to as the “Critical Period”. While the period more than one month before the Opening Ceremony of the Olympic Games and the period of transition from the Olympic Games to the Paralympic Games was referred to as the “Non-Critical Period”. We applied different SLAs to each of the two periods. Table 1 shows the SLAs applied for the Tokyo 2020 Games.

All incidents were registered in an incident management tool provided by a cloud service. Anyone working in technology can access this registered information to view and update its contents. The tool automatically measured the time elapsed since registering an incident. By checking the time elapsed for each incident in real-time, the incidents were managed to comply with the SLAs shown in Table 1.

3. Transition to the TCC System

This section gives a detailed description of TCC, which served as the primary contact point for incident response.

As mentioned above, we used a dedicated incident management tool for incident response at the Tokyo 2020 Games, the same tool used in previous Games. However, while the Rio 2016 Games introduced the tool 31 months before the Games opened, the Tokyo 2020 Games began using the tool in February 2016, approximately 22 months earlier than the Rio 2016 Games. This early launch of the tool effectively improved the proficiency of the Organising Committee in operating the management tool.

Initially, the primary contact point for the incident response was the internal support desk supporting the

IT infrastructure system within the Organising Committee. But because a large volunteer portal site was launched as an external service in August 2018, the TCC started acting as the incident acceptance desk in July, a month before the launch^(Note 1). At this point, the TCC's customer base was still limited to internal members of the Organising Committee who were Games stakeholders, so the TCC was set up in a section of the Organising Committee office and began its operations with a staff of seven operators. However, since it was known that many of the incident inquiries during the Games would be in English, bilingual operators with English skills were assigned to the TCC from the beginning. At the time, the number of incidents received per month was approximately 400.

In April 2019, to respond to the holding of test events to accumulate know-how of Games operations and the expansion of the number of staff in the Organising Committee, the TCC moved from its base at the Organising Committee to a dedicated facility equipped with call handling facilities, and statistics and call recording functions, including CTI^(Terminology). The TCC was expanded to provide full-scale call centre support. In 2019, the TCC had 11 operators and handled a maximum of 1,250 incidents per month, including the test event period.

TCC was expanded in preparation for the Tokyo 2020 Games. However, due to the decision to postpone the Games by one year in March 2020, TCC had to temporarily reduce its size and structure, including the suspension of call reception. One year later, in April 2021, the TCC resumed primary contact operations on the same scale and with the same content as was initially planned for the Tokyo 2020 Games. Based on the original plan, the Alternative Technology Call Centre (ACC) was established in Kyoto, about 360 km away from the TCC, to ensure the ability to handle incoming calls during the peak of the Games and to continue reception operations in the event of a failure. Therefore, TCC and ACC operated side by side from April until the end of the Paralympic Games in September. In addition, the TCC/ACC operated 24 hours a day in conjunction with the 24-hour operation of the TOC from July 12. During the Games, up to 32 operators at the two sites were available

(Note 1) The Volunteer Portal was a service used by many applicants for volunteer positions at the time, and the Volunteer Contact Center (VCC), which was organized separately, was responsible for directly responding to applicants. The TCC responded to inquiries by receiving escalations from the VCC.

to handle inquiries, and they handled more than 7,000 inquiries in July.

4. TCC Operations

4.1 Incident Response

TCC linked received inquiries to one of the 286 services registered in the Technology Service Catalog and registered the contents of the inquiry in the incident management tool, along with information such as the user who made the inquiry and the location where the incident occurred. The service owner provided Service Acceptance Criteria (SAC) for each service, including an overview of the service, escalation points, FAQs, and basic confirmation items. Based on this information, an appropriate judgment of which service the query belonged to was made, and TCC provided the primary response.

TCC utilized the dashboard function of the incident management tool to display the number of inquiries waiting to be received, the number of inquiries for each major venue and service, the number of pending inquiries, and the percentage of SLAs achieved on a large monitor in real-time, so that everyone in the TCC could always understand the situation at the time.

TCC required that the name and organization of the user inquiring be recorded at the first reception. For users from overseas, telephone inquiries were naturally conducted in English. At the Tokyo 2020 Games, the IVR (Interactive Voice Response)^(Terminology) system was not used to sort languages, but dedicated phone numbers were provided for Japanese and English. However, there were many cases in which the operator had difficulty understanding calls from English-speaking users due to a very thick accent or unfamiliar names. For these reasons, TCCs had to spend a lot of time on initial interviews with users, which has caused the TCC's reputation for customer satisfaction to decline in past Games. The Tokyo 2020 Games used a database of Game stakeholders that managed user information linked to accreditation numbers to identify users. By having users provide their accreditation numbers, the user information retrieved by searching the Participant Database could be automatically registered in the incident management tool. In addition, since the usage of cell phones such as smartphones has increased the percentage of individuals that can be identified by their calling numbers, we have devised a way to speed up the process of accepting inquiries by automatically search-

ing the incident management tool by calling numbers and displaying candidates of users' past inquiries through CTI linkage.

Even so, there were several difficulties for the call centre to acquire knowledge in advance and increase its proficiency in handling inquiries for events such as the Olympic and Paralympic Games, where services did not start until the Games period, or that some Games stakeholders, such as members of the press, did not arrive in Japan and participate in the Games until just before the Games period. Operators who joined the call centre at an early stage of its setup were allowed to experience work on-site, for example, working with the second-tier venues IT team at the test event to understand the situation of users who inquired about the event, but even this was not sufficient.

4.2 Support for Routine Operations

Although this section has focused mainly on incident responses such as failures and defects, many of the inquiries received by the TCC included Service Requests, which were requests for permission to use a service or to set access privileges. Service Requests accounted for approximately 65% of all incidents. Among these, requests to create an account to use each service accounted for about 12% of the total number of incidents. This was the same trend seen for technology services in previous Games. Routine tasks such as account creation have well-established work procedures and do not require a particular operator to perform them. Therefore, to increase the responsibility of the second and third tiers of the IT service operations hierarchy in handling more technical incidents, routine tasks such as account creation were assigned to the TCC/ACC at the Tokyo 2020 Games. This was also an efficient way to use operators during night shifts when the number of incoming inquiries was lower. As for the accounts created for the Tokyo 2020 Games, 7,772 accounts were created between May 2021 and September 2021 (this did not include accounts for staff of the Organising Committee), of which 4,963 accounts were provided to volunteers using the technology services.

4.3 Support for the Infection Control Business Support System

Although the impact of the coronavirus disease 2019 (COVID-19) was unique to the Tokyo 2020 Games, an "Infection Control Business Support System"⁽²⁾ was hastily developed and introduced as a response to

COVID-19 from the perspective of technology services. However, the system and the operation of infection control measures were not finalized in advance due to the effects of daily changes in COVID-19 compliance policies at various levels, including the government, and changes were required even during the Games. The main functions of the system were to manage immigration for overseas stakeholders and to manage the health and test results of all Games stakeholders, including residents in Japan, and users were just anyone involved in the Tokyo 2020 Games. However, due to time constraints, the system went into complete operation without properly disseminating its operations, resulting in a very confusing situation immediately after the system was put into operation. In particular, we received many inquiries from members of the press wishing to visit Japan, and by the beginning of July, more than 1,000 inquiries remained unresolved.

As mentioned above, since the target users of the "Infection Control Business Support System" were wide-ranging, and the system was out of the TCC's scope of responsibilities, a dedicated call centre was set up for the system. But because the TCC could assign some of its operators to the dedicated call centre, we were able to begin reception operations in a short period. Since the call centre used the same incident management tool as the TCC and the operators who had experience handling incidents at the TCC had the appropriate awareness for the Games stakeholders, they could handle inquiries efficiently and effectively. Specifically, the number of unresolved inquiries dropped to 260 on July 14, and the number of pending incidents reduced to fewer than 100 after July 24.

5. Incidents at the Tokyo 2020 Games

Finally, the following table shows the total number of incidents during the Tokyo 2020 Games.

127,034 incident tickets^(Note 2) were issued for the Tokyo 2020 Games between February 2016 and September 2021. A breakdown of the tickets is given below (Table 2, Figure 2).

The highest number of incidents in a single day occurred on July 5, 2021, with 936 incidents recorded. It was the busiest period, as the Opening Ceremony was to be held 20 days later, and the staff was deployed to the

(Note 2) Incidents registered in the incident management tool were issued incident tickets with individual incident numbers for identification.

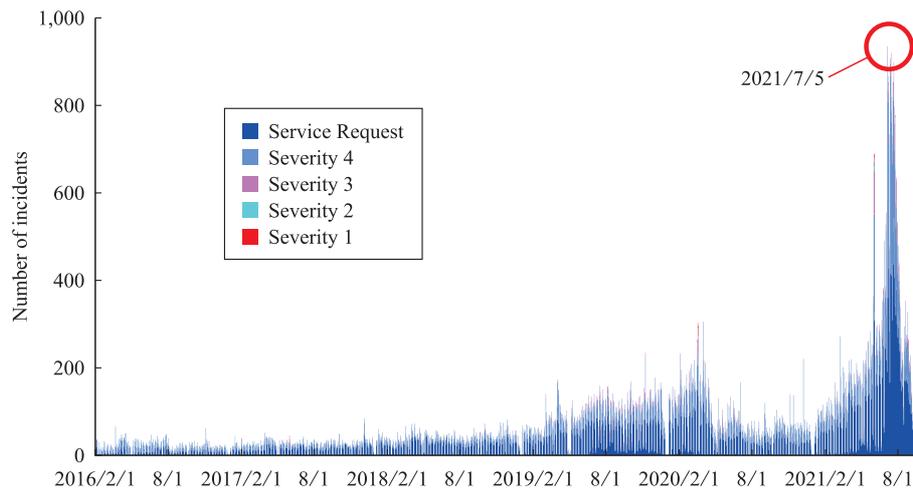


Figure 2 Progress in the Number of Incidents per Day Throughout the Entire Period

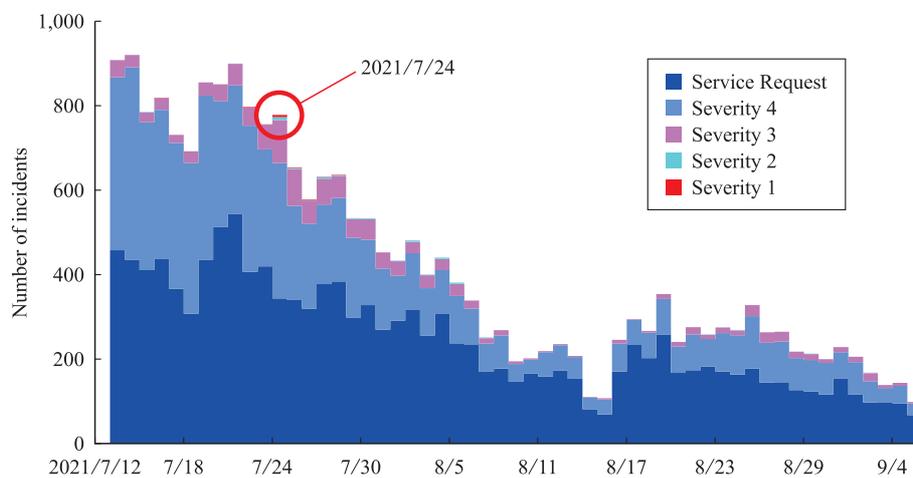


Figure 3 Number of Incidents per Day during the Duration of the Games

Table 2 Number of Incidents per Severity throughout the Entire Period

Severity 1	Severity 2	Severity 3	Severity 4	Service Request
120	272	5,319	41,447	79,876

venue to prepare for the Games. However, the breakdown shows that there were 585 Service Requests, 330 Severity 4 incidents, 20 Severity 3 incidents, and 1 Severity 2 incident, so there were not many severe incidents.

For a detailed look at the incident situation, the period covered was narrowed down to the period known as the Critical Period, which is the period during which the Games were held: July 12, 2021, to September 5, 2021 (including the Non-Critical Period during the transition

Table 3 Number of Incidents per Severity during the Duration of the Games

	Severity 1	Severity 2	Severity 3	Severity 4	Service Request
7/12~8/8	12	35	1,091	6,755	9,809
8/8~8/19	0	0	46	577	1,818
8/20~9/5	0	4	236	1,229	2,324
Total	12	39	1,373	8,561	13,951

Table 4 Number of Incidents during the Duration of the Rio 2016 Games

	Severity 1	Severity 2	Severity 3	Severity 4	Service Request
2016/7/25~8/21	30	203	3,256	8,456	17,445

Table 5 Quality of Primary Response of TCC

		Jun.	July	Aug.	Sept.
SLA Compliance Rate	Response Time	99.4%	97.2%	98.6%	99.9%
	Resolution Time	98.8%	93.4%	97.0%	99.7%
Call Response Quality	Calls answered within 30 seconds	99.8%	99.7%	99.9%	99.9%
	Call abandonment rate	2.1%	4.6%	3.2%	2.6%
	Average call duration (s)	287	377	374	291
Incident resolution rate by TCC		69.1%	65.7%	59.0%	65.0%

from the Olympic Games to the Paralympic Games) (Table 3, Figure 3).

The highest number of incidents during this period was 920 on July 14, second only to the highest number on July 5. However, July 24 was the most distinctive day in this period, with 5 Severity 1 incidents and 7 Severity 2 incidents, making it the day when the highest number of high severity incidents occurred. (Also, 102 Severity 3 incidents occurred, making it the day with the highest number of Severity 3 incidents overall.) This was the day following the Opening Ceremony of the Olympic Games, coinciding with the start of multiple competitions. Looking at the incident occurrence situation of the Rio 2016 Games (Table 4), for example, if we compare the 27 days from July 12, 2021 to August 8, 2021 (Tokyo) and from July 25 to August 21, 2016 (Rio de Janeiro), the total number of severe Severity 1 and Severity 2 severe incidents was 233 in the Rio 2016 Games, while it was reduced to 47 in the Tokyo 2020 Games, which is about 1/5. The total number of incidents during this period was 17,702 (Tokyo) and 29,390 (Rio de Janeiro), and the ratio of Severity 1 and Severity 2 incidents to the total number of incidents was about 0.8% in Rio de Janeiro and about 0.3% in Tokyo.

Table 5 shows the quality of the TCC's primary response to incidents at the Tokyo 2020 Games, including SLA compliance, and both response and resolution times far exceeded the target SLA compliance rate of 85%.

6. Conclusion

The Tokyo 2020 Games had to be held without spectators due to the implementation of COVID-19 infection control measures. Although the size of the Games was smaller than initially expected, the number of Games stakeholders using the technology services provided by the Organising Committee did not decrease significantly compared to previous Games. Even under such circumstances, the number of incidents, including high severity incidents, was lower than in previous Games. The SLA compliance rate by the TCC, the primary point of contact for incident response, was well above 90%. Based on the above, we believe that the Tokyo 2020 Games achieved stable operation of technology services.

References

- (1) Y. Nakamura and T. Yoshida, Technology Operation Centre, 2022.
- (2) T. Tachi, A. Usui and F. Nakayasu, Introduction History and Operational Performance of the Infection Control Business Support System "Tokyo 2020 ICON", 2022.

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