

**Legislative Council Panel on
Information Technology and Broadcasting**

**Access problem affecting some Hong Kong-based websites
on 1 November 2004**

Purpose

This paper reports on an incident involving an interruption to the Hong Kong domain name translation service that occurred on 1 November 2004. It also briefs Members on the respective roles of the Government and the Hong Kong Internet Registration Corporation Limited (HKIRC) in the operation of the domain name registration system in Hong Kong.

Introduction

2. Internet domain names are used to access Internet services. The Hong Kong Domain Name Registration Company Limited (HKDNR), a wholly-owned subsidiary of the HKIRC, is responsible for administering the Domain Name System (DNS) that translates Internet domain names ending with '.hk' to their corresponding Internet Protocol (IP) addresses which computers can recognise. Domain name records, and the mapping between domain name and IP address, are maintained in the primary name server of the HKDNR.

3. As Internet users apply for new domain names or relinquish existing ones, the name record database needs to be updated. The HKDNR runs a routine system process daily to update the name record database of the primary name server. These name records are propagated to secondary name servers around the world at regular intervals everyday to facilitate the translation service.

The Incident

4. The HKDNR received a number of complaints about loss of domain name services from customers and service patrons at 9:00 am on 1 November 2004. It was then discovered that the routine system process to update the domain name record database had been interrupted by a background process at around 2:30 a.m. on 1 November 2004. Some domain name records relating to '.com.hk' were not uploaded to the primary name server. The incomplete data set was subsequently propagated to the secondary name servers. As a result, translation of the affected domain names could not be processed properly.

5. At 9:16 a.m. on 1 November 2004, the HKDNR reloaded the complete data set to the primary name server and propagated it to the secondary name servers. The translation service of the affected domain names progressively resumed from around 9:30 a.m. on the same day. In respect of the number of users actually affected by the temporary outage of the service, the HKDNR has not been able to make an accurate estimate, although it has recorded around 110 user complaints about the incident.

Remedial measures and improvement areas

6. The Government demanded the HKIRC to conduct a detailed investigation into the incident and to provide a report of its findings on the cause of the incident, remedial measures taken/to be taken, as well as measures to prevent recurrence of such incidents in future. HKIRC has submitted a report which is annexed to this paper.

7. In summary, the HKDNR has undertaken to enhance its risk assessment and management capabilities, systems operation and administration, technical support, software testing and deployment processes, and customer service especially during off-hours and holidays to better serve the needs of the Internet community. We will monitor closely the HKIRC on the implementation of the proposed enhancements to its services and processes with rigour.

Roles of the Government and the HKIRC in the administration of Internet domain names

8. In October 1999, a Task Force was set up under the then Information Infrastructure Advisory Committee (IIAC) to review the administration and assignment of Internet domain names and IP addresses in Hong Kong with a view to recommending a framework of arrangements which best suits the needs of Hong Kong. In June 2000, a consultation paper was issued to invite comments from the public.

9. Pursuant to the public consultation exercise, the HKIRC, a non-profit-making and private company, was formed in December 2001 to assume the responsibility for the administration and management of ‘.hk’ domain names. Having regard to international practices, the HKIRC is operated as an industry-led and market-oriented organization. Its day-to-day business is managed by a Chief Executive Officer. To cater for the interests of a diverse profile of users and stakeholders of domain names, the HKIRC’s board of directors consists of individuals elected by members from industry, academia, professional bodies and the Internet user community under the respective classes. The Government has also appointed a representative¹ to sit on the board to provide input pertaining to public policies relevant to domain names administration.

10. Internet domain names are considered a public resource. As far as Government oversight is concerned, the Government signed a Memorandum of Understanding with the HKIRC in April 2002 designating the company to manage and administer “.hk” domain names under a set of principles. These principles require the HKIRC to conduct its activities in an open and transparent manner, contribute to the sound development of the Internet community and comply with the public policy objectives of the Government.

¹ The Government class representative is designated by the Government Chief Information Officer and is not subject to election.

11. The Government keeps abreast of international trends and developments with respect to the institutional arrangement for the administration of Internet domain names. The current trend among many countries that use IT and the Internet extensively is to transfer domain name administration functions from universities² to non-statutory organizations with the endorsement of governments. Most of the non-statutory organizations are membership-based, industry-led and self-regulating.

12. The Government will continue to work with the HKIRC to constantly improve the overall governance and administration of Internet domain names in Hong Kong and the quality of its services. We shall require the HKIRC to submit regularly progress reports on measures taken to ensure that its services will meet the evolving needs of the Internet community.

Commerce, Industry and Technology Bureau
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² Before the commercialization and widespread adoption of the Internet, it was typically used by universities for academic research and related communication among user groups. As such, domain name administration was often handled by universities on a non-commercial basis.