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For discussion
on 7 February 2002

Legislative Council Panel on Security

Communal Information Capacity Planning for the years 2002-2006

PROBLEM

The existing mission critical Communal Information System (CIS), which provides 24-hour non-stop information processing service to the Hong Kong Police Force, will reach its system capacity limit by early 2003.

PROPOSAL

2. The Commissioner of Police, with the support of the Secretary for Security and the Secretary for Information Technology and Broadcasting, proposes to upgrade the CIS and expand its system capacity to cope with the growing operational need.

JUSTIFICATION

Functions of the CIS

3. CIS, introduced in January 1997, comprises three major components, viz. the Formation Information Communal System (FICS), the Regional Information Communal System (RICS) and the Traffic Operations and Management System (TOMS).

4. FICS, designed to facilitate the daily operations of the front-line police officers at each police station, was installed in 53 divisions of the Force. Information reported by members of the public or processed by the police officers is entered into FICS in the form of a police case. The following sets out the major functions of FICS -

(a) to record all case details such as incident, location and person details and supporting case enquiries;

(b) to administer the record of detention, movement and release of arrested persons;

(c) to keep track of all properties including safe properties and money, case exhibits, stolen properties and properties of detainees;

(d) to allow matching of lost and found properties, stolen properties and missing persons;

(e) to support the preparation of case papers for court cases; and

(f) to support various daily operations, such as bail processing, maintenance of bring-up reminders and crime messages, generation of police forms and reports and end of shift handover at report room etc.

5. RICS was designed to facilitate the daily operations at six Regional Headquarters and 15 bureau formations in the Police Headquarters. The system includes all functions available in FICS and some special functions for RICS users such as covert enquiries and cases handled by the Complaints Against Police Office.

6. TOMS was designed for use by the traffic units and adopts the same functionality as FICS. In addition, TOMS handles traffic operations such as traffic and accident investigations, vehicle pound management for detained vehicles, traffic summons applications, traffic message processing and recording of alcohol test results for drink driving.

7. Currently, CIS employs 138 servers and has around 2 200 client workstations distributed across the Police Headquarters, six Regional Headquarters and 53 divisions throughout the territories. The system provides round-the-clock service and is an indispensable tool to the police officers in their daily operations.

Problems encountered by the system

8. Since its installation in 1997, constant improvements have been made to the CIS. These improvements, like provision of new reports and fine-tuning of user interface, have enhanced the user friendliness and system facilities, which in turn attracted more users to use the system. Apart from normal growth in transactions and user base, there is also an increasing demand for the provision of more sophisticated

analytical and supervisory functions and data consolidation so that effective crime analysis could be conducted for fighting and prevention of crimes. In addition to processing capacity, data communication through the Force data network for consolidation and analysis has also increased. More users utilise CIS in their daily operations. Their work will be adversely affected if the response of the system is slow.

9. In February 2001, the Force commenced a 5-year server capacity planning exercise for the CIS to size up its server capacity up to 2006. Based on the transaction growth rate and planned enhancement requirements, it is found that 98 of the 138 CIS servers are reaching their limits of processing, memory and storage capacity by 2003 and need upgrading. Of these 98 servers, 12 of them, which are installed at the Police Headquarters or Regional Headquarters for central functions, are most critical in terms of their capacity limits. These 12 servers need to be upgraded by end 2002.

10. Failure to upgrade the infrastructure supporting CIS would lead to degradation of system performance and interruption of the services. Members of the public will then need to wait a long time to get their reported cases processed. When a server is approaching its capacity limit, it processing speed will slow down. Eventually, when the server reaches its limit with no space in its hard disk to hold any new cases or property information, the server will be brought down and the entire CIS service could be interrupted or paralysed. Being the Force backbone to support front-line operations, CIS has to maintain its system capacity; otherwise, service to the public will be much impeded.

Proposed solution

11. We propose to upgrade the 98 servers that are approaching their capacity limits. These servers include 74 servers located in 37 divisions (two servers in each division for dual back up), 17 servers in the Police Headquarters, four servers in the Kowloon West Regional Headquarters and three servers in the New Territories North Regional Headquarters. These servers will either be replaced with more powerful machine or enhanced with additional memory and/or disk storage. There will be no addition of servers.

Benefits of the upgrading

12. The existing service level provided by CIS is to maintain the average response time of all on-line transactions, for all levels of complexity, to be within 15 seconds for at least 80% of the transactions. The proposed upgrading of the CIS can maintain system performance and transaction response time at the current service level and ensure a fast turnaround time in processing requests from the public.

13. The proposal also ensures system capacity for growth in the coming years up to end of 2006. Meanwhile, capacity utilisation will be monitored regularly and the next major capacity review will be conducted in 2004. Comparing with the existing system, we aim to increase the capacity to serve an annual average increase of 5% in user transactions and 11% in data storage growth. The growth in user transactions is projected using the total number of CIS functions available in the system, the anticipated utilisation of each function and the user population. The growth in data storage is projected based on actual disk storage utilisation in the past years. The proposed system will also have reserve capacity to cater for implementing further necessary enhancement of system services in a timely manner.

FINANCIAL IMPLICATIONS

Non-recurrent cost

14. The estimated total non-recurrent cost of the proposal is $17,440,000. The breakdown of the cost is as follows -

	Item	2002-03 $'000	2003-04 $'000	Total $'000
(a)	Server hardware	4,800	9,800	14,600
(b)	System software	200	400	600
(c)	Network equipment	450	200	650
(d)	Contingency (10%)	545	1,040	1,585
	Total	**5,995**	**11,440**	**17,435**
	Say			**17,440**

15. As regards paragraph 14(a), the estimate of $14,600,000 is for the acquisition of computer hardware and implementation service for upgrading the 98 servers as depicted in paragraphs 9 and 11. Of these 98 servers, 41 servers will be replaced, 52 servers will undergo memory and/or disk storage upgrade and the remaining five servers will undergo CPU[1] upgrade.

16. As regards paragraph 14(b), the estimate of $600,000 is for the acquisition of system software including new system modules for the operation of new models of disk and tape devices to be acquired.

17. As regards paragraph 14(c), the estimate of $650,000 is for the upgrading of three communication routers for 19 WAN[2] links between divisions and the Police/Regional Headquarters, with installation and setup costs.

18. As regards paragraph 14(d), the estimate of $1,585,000 represents a 10% contingency on cost items set out in paragraphs 14(a) to (c).

19. Apart from the above non-recurrent costs, the Force will incur $1 million non-recurrent staff cost to be absorbed by it existing resources. It comprises 4 man-months of Contract Project Manager, 8 man-months of Contract Systems Analyst and 8 man-months of Contract Analyst Programmer for the tender preparation, evaluation, procurement, migration and administrative support for the installation of equipment.

Recurrent cost

20. The estimated additional annual recurrent expenditure arising from the proposed upgrading, net of the annual recurrent expenditure of $8.26 million for the existing system, will be $1.895 million. The breakdown of the recurrent cost is as follows -

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[1] CPU stands for Central Processing Unit. It is the brain of a computer where most calculations take place.

[2] WAN stands for Wide Area Network. It is the communication links between two or more geographically dispersed locations, usually in the form of public telephone lines or leased lines.

		$'000
(a)	Hardware maintenance	1,160
(b)	Software license	50
(c)	Network equipment maintenance and rental of leased lines	685
	Total	**1,895**

21. As regards paragraph 20(a), the estimate of $1,160,000 is for the additional maintenance cost of the upgraded hardware as depicted in paragraph 15.

22. As regards paragraph 20(b), the estimate of $50,000 is for the additional system software license cost as depicted in paragraph 16.

23. As regards paragraph 20(c), the estimate of $685,000 is for the additional recurrent cost of the upgraded network, of which $50,000 is for the maintenance of the upgraded network equipment and $635,000 is for the rental of additional leased data communication lines to expand the bandwidth of the WAN links as depicted in paragraph 17.

24. The upgraded system will be supported by existing manpower and no additional recurrent resources will be required in this regard.

IMPLEMENTATION PLAN

25. The Force plans to implement the proposed upgrade according to the following schedule -

Activity	**Target dates**
(a) Tendering and award of contract	Late April 2002 to September 2002
(b) Implementation	October 2002 to June 2003

OTHER PROPOSALS CONSIDERED

26. As the problem of this exercise is insufficient capacity, there is no alternative but to upgrade or replace the infrastructure with more powerful hardware/software.

BACKGROUND INFORMATION

27. The Force conducts regularly capacity planning review to monitor the capacity of a computer system and cope with increasing operational requirements. After the commissioning of CIS for four years since 1997, the Force commenced a 5-year capacity planning exercise in February 2001 to size up the server and network capacity for the coming years up to 2006. The exercise was completed in June 2001. With the projection of the future business growth and infrastructure requirements, an upgrade configuration proposal with detailed hardware planning and recommended upgrading schedule is produced.

ADVICE SOUGHT

28. Members are invited to give their views on the proposal. Subject to Members' views, we plan to seek funding approval for the proposal from the Finance Committee in April 2002.

Security Bureau
February 2002