Indirections

Ooi Wei Tsang
complex systems
SR3
p.o. box
INTRODUCTION

The Pursuit of Space
You need your own space. We all do. And SingPost understands the need for privacy. That's why we are pleased to bring you a new service that will do just that for you.

After all, the world does not need to know where you are all the time.

Introducing VBox
With VBox, your residential address can NOW be a unique private number. Wherever you are, your mail will be delivered to you.

So, you don't have to tell the whole world where you live - only the people that matters to you. And no matter where you move, your number conveniently remains the same.

VBox Moves with you Locally & Abroad
Your private VBox number is linked to your local residential or overseas residential address. It is so convenient; you don't have to keep updating everyone where you move to.

VBox Makes Privacy and Convenience Affordable

For a VBox number linked to a local residential address, it works out to just $5 ($5.35 w/GST) a month:
taxi booking
Need a taxi? Just call 6-DIAL-CAB

ONE telephone number is all you need to remember if you need to call a taxi from next week.

Call 6-3425-222 or tap out the alphabetical prompter 6-DIAL-CAB.

The initiative is part of a transport masterplan announced early this year to make commuting a lot easier.

It arose from feedback from cab customers - especially tourists - who cannot remember the numbers for the half a dozen taxi firms here.

It is, however, not a super dispatch system that can scour Singapore’s taxi population of 24,000 to locate an empty one nearest to you.

By using the common number, commuters are channelled to all the taxi firms' call centres, one at a time.

If the first cab operator’s call centre does not take your call in 10 seconds, the system diverts you to the second one, and then the third.

If the third call is unsuccessful, you will be asked to try again. If you do, the system will recognise it is your second attempt and connect you to the next three call centres.

Asked if the new common number system would be replaced by a ‘smarter’ system in future, the Land Transport Authority said no.

‘The common taxi booking number system is a permanent facility to make it easier for taxi commuters to book a taxi,’ a spokesman said.

The LTA roped in SingTel to develop the system, for $90,000.
mobile phones
S'pore to start mobile number portability in June

More competition expected between the three service providers.

By Alfred Siew

SOME 5.8 million mobile phone users can expect better deals, as the industry heads for its biggest shakeup in years when the full number portability rings in on June 13.

This will let users switch from one service provider to another without changing his number, making it easier than before. Previously, they had their numbers forwarded, but ended up with two numbers instead.

There are about 130,000 mobile phone users who have ported their numbers under a current call-forwarding solution, but they have to use their old and new mobile numbers concurrently.

Besides convenience, consumers can expect the three telcos - Singapore Telecommunications, StarHub and MobileOne - to fight harder to retain them, by offering cheaper prices or bundled deals. SingTel now has a 41 per cent market share, Starhub has 31 per cent share, while MobileOne takes a 27 per cent slice.

In the end, there may not be that many consumers switching, said the Infocomm Development Authority (IDA) deputy general for telecoms Andrew Haire on Wednesday. But the mere threat of them leaving, he noted, will force telcos to be on the ball.

Already, telcos have tried to lock in customers by tying cellphone services to broadband and pay-TV services. StarHub and SingTel both offer discounts for customers who sign up for more than one service.
call diversion
Call Divert

When you are too busy to answer calls, you can divert incoming calls to your Voicemail box or a designated number - a phone or even a fax machine.

There are four types of Call Divert services.

<table>
<thead>
<tr>
<th>Call Divert Code</th>
<th>Call Divert Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Divert All Calls</td>
</tr>
<tr>
<td>67</td>
<td>Divert on Busy</td>
</tr>
<tr>
<td>61</td>
<td>Divert on No Reply</td>
</tr>
<tr>
<td>62</td>
<td>Divert on Unreachable</td>
</tr>
</tbody>
</table>
web link
email addresses
double click
Types of Indirection
More Indirections
domain name
www.comp.nus.edu.sg =
www0.comp.nus.edu.sg
DNS servers
anycast
multicast
(webcast, conferencing etc.)
file systems
c:\music\song.mp3

cluster 0x25542 on disk
replicated DB
virtual memory
## Virtual Memory Page

### Paging File Size

<table>
<thead>
<tr>
<th>Drive</th>
<th>Paging File Size (MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C:</td>
<td>768 - 1536</td>
</tr>
</tbody>
</table>

### Paging file size for selected drive

- **Drive**: C:
- **Space available**: 7,988 MB
- **Custom size**:
  - **Initial size (MB)**: 768
  - **Maximum size (MB)**: 1,536

- **System managed size**
- **No paging file**

### Total paging file size for all drives

- **Minimum allowed**: 2 MB
- **Recommended**: 766 MB
- **Currently allocated**: 768 MB

[OK] [Cancel]
virtual machine
Java references
Circle c = new Circle();
Circle d = c;
function calls
Where else?
change channel to "CNN", instead of "15"?
single place to order movie tickets?
unified communication channel?

“weitsang”

- phone
- email
- IM
- facebook
Any problem in computer science can be solved with another layer of indirection.

-- David Wheeler
Any performance problem can be solved by removing a level of indirection

-- Mike Haertel
SR3
### Discussion Room (DR)

<table>
<thead>
<tr>
<th>Room</th>
<th>Location</th>
<th>Map/Photo</th>
<th>Floor Plans(COM1 Cluster only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion Room 1</td>
<td>COM1-B-14B</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Discussion Room 2</td>
<td>COM1-B-14A</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Discussion Room 3</td>
<td>COM1-B-07</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Discussion Room 4</td>
<td>COM1-B-06</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Discussion Room 5</td>
<td>COM1-01-17</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Discussion Room 6</td>
<td>S15-06-13</td>
<td>Click here</td>
<td>-</td>
</tr>
<tr>
<td>Discussion Room 6A</td>
<td>S14-06-16</td>
<td>Click here</td>
<td>-</td>
</tr>
<tr>
<td>Discussion Room 7</td>
<td>COM1-01-22</td>
<td>Click here</td>
<td>Click here</td>
</tr>
</tbody>
</table>

### Seminar Room (SR)

<table>
<thead>
<tr>
<th>Room</th>
<th>Location</th>
<th>Map/Photo</th>
<th>Floor Plans(COM1 Cluster only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar Room 1</td>
<td>COM1-02-06</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Seminar Room 2</td>
<td>COM1-02-04</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Seminar Room 3A</td>
<td>COM1-02-12</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Seminar Room 3B</td>
<td>COM1-02-13</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Seminar Room 4</td>
<td>SoC-06-12</td>
<td>Click here</td>
<td>-</td>
</tr>
<tr>
<td>Seminar Room 5</td>
<td>COM1-02-01</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Seminar Room 6</td>
<td>COM1-02-03</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Seminar Room 7</td>
<td>COM1-02-07</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Seminar Room 8</td>
<td>COM1-02-08</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Seminar Room 9</td>
<td>COM1-02-09</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Seminar Room 10</td>
<td>COM1-02-10</td>
<td>Click here</td>
<td>Click here</td>
</tr>
<tr>
<td>Seminar Room 11</td>
<td>COM1-02-11</td>
<td>Click here</td>
<td>Click here</td>
</tr>
</tbody>
</table>