

# 建構智慧城市對網絡安全的挑戰與機遇

香港應用科技研究院有限公司信息安全與數據科學部高級總監許志光博士

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# 內容

- 應用科技研究院 ASL 簡介
- 智慧城市
- 網絡安全的挑戰
- 網絡安全的機遇
- 結論

# 應用科技研究院 ASL



- 使命
- 在香港建立一個世界級的資訊安全研發團隊;
  - 提供先進的安全顧問，評估和審查;
  - 開發先進的資訊安全技術;
  - 培育本地和國家的資訊安全專家和從業人員

# 智慧城市

- 智慧家庭 Smart home
- 智能電網 Smart Grid
- 交通 Smart Transportation
- 醫療 Smart Health
- 商業 Smart Commerce
- 製造業 Smart Manufacturing
- ...

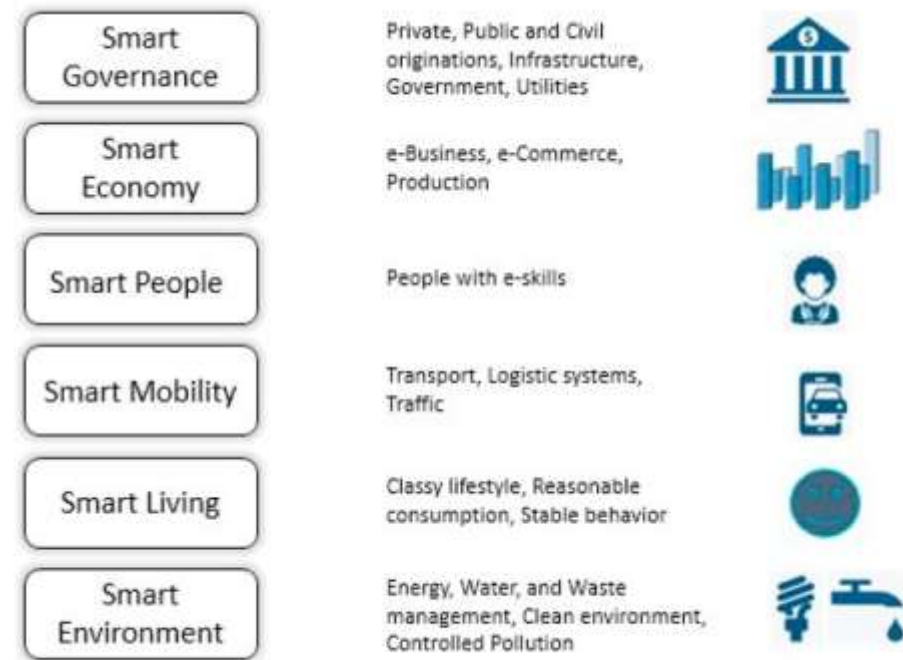


Fig. 1. Dimensions of Smart Cities

另一種觀點: Cyber Security Attacks on Smart Cities and Associated Mobile Technologies, by AlDairi & Tawalbe, Procedia Computer Science, V.109, 2017, 1086-1091, <https://www.sciencedirect.com/science/article/pii/S1877050917310669?via%3Dihub>

# 智慧城市: 不同的層面

- 管理層面 (Management level ),數據層面(data level), 網絡層面(network level)

管理層面(Management Level): 商業流程，法律需求  
(Business Process, Legal requirements)



數據層面(Data Level): 雲端資料收集，大數據分析，數據加密  
(Collection of data, Big data analysis, data encryption at Cloud)

0100  
1101

網絡層面(Network Level): 雲服務器， 網絡， 設備， 人員  
(Cloud Server, Network, Devices, People)



# 一些事件 (1)

- 勒索軟件
- 來源: <https://security.radware.com/ddos-experts-insider/ert-case-studies/how-multinational-bank-handled-ransom-threat-ssl-attack/>

📅 3/6/2017



## Ransomware Attacks on Multinational Bank & How They Prevented Them

In 2016, the financial services industry suffered 44 million cyberattacks, more than any other industry. Everything from hacktivist motivated ransomware attacks to Internet of Things (IoT) assaults targeted leading banks, financial service institutions, and markets, resulting in hundreds of millions in lost revenue.





## 一些事件 (2)

- 入侵學校的設備 (2017)
- 來源:  
<https://campustechnology.com/articles/2017/02/13/university-hackers-attacked-5000-iot-devices-on-campus.aspx>





## 一些事件 (3)

- 患者入侵醫院的設備 (2014)
- 來源:  
<https://www.massdevice.com/hospital-patient-hacks-his-own-morphine-pump-massdevicecom-call/>

### Hospital patient hacks his own morphine pump | MassDevice.com On Call

AUGUST 15, 2014 BY AREZU SARVESTANI — [LEAVE A COMMENT](#)



MASSDEVICE ON CALL — A pair of patients at an Austrian hospital became addicted to morphine after one of them hacked their drug pumps to boost their dosage, according to a local report.

The unidentified patients had to be treated for addiction after becoming dependent on high doses of morphine. Their usage was so severe, according to the *Austrian Times*, that one of the patients suffered respiratory arrest.

## 一些事件 (4)

- 智能電網 Scada (2015)
- 來源: <https://ics-cert.us-cert.gov/alerts/IR-ALERT-H-16-056-01>



The screenshot displays the ICS-CERT (Industrial Control Systems Cyber Emergency Response Team) website. The header features the ICS-CERT logo and name, along with a search bar. The navigation menu includes links for HOME, ABOUT, ICSJWG, INFORMATION PRODUCTS, TRAINING, and FAQ. The main content area shows an alert titled "Alert (IR-ALERT-H-16-056-01) Cyber-Attack Against Ukrainian Critical Infrastructure", dated February 25, 2016. The alert includes social media sharing options (Print, Tweet, Send, Share) and a "Legal Notice" section. A "SUMMARY" section follows, detailing a cyber-attack on Ukrainian power companies. The left sidebar contains a "Control Systems" menu with links to Home, Calendar, ICSJWG, Information Products, Training, Recommended Practices, Assessments, Standards & References, Related Sites, and FAQ.

**ICS-CERT**  
INDUSTRIAL CONTROL SYSTEMS CYBER EMERGENCY RESPONSE TEAM

HOME ABOUT ICSJWG INFORMATION PRODUCTS TRAINING FAQ

**Control Systems**

- Home
- Calendar
- ICSJWG
- Information Products
- Training
- Recommended Practices
- Assessments
- Standards & References
- Related Sites
- FAQ

**Alert (IR-ALERT-H-16-056-01)** [More Alerts](#)

**Cyber-Attack Against Ukrainian Critical Infrastructure**

Original release date: February 25, 2016

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**SUMMARY**

On December 23, 2015, Ukrainian power companies experienced unscheduled power outages impacting a large number of customers in Ukraine. In addition, there have also been reports of malware found in Ukrainian companies in a variety of critical infrastructure sectors. Public reports indicate that the BlackEnergy (BE) malware was discovered on the companies' computer networks, however it is important to note that the role of BE in this event remains unknown pending further technical analysis.

An interagency team composed of representatives from the National Cybersecurity and Communications Interdiction

# 一些問題

- 數學模型完善嗎？
- 管理？

Source:  
<https://spectrum.ieee.org/cars-that-think/transportation/self-driving/people-want-driverless-cars-with-utilitarian-ethics-unless-theyre-a-passenger>

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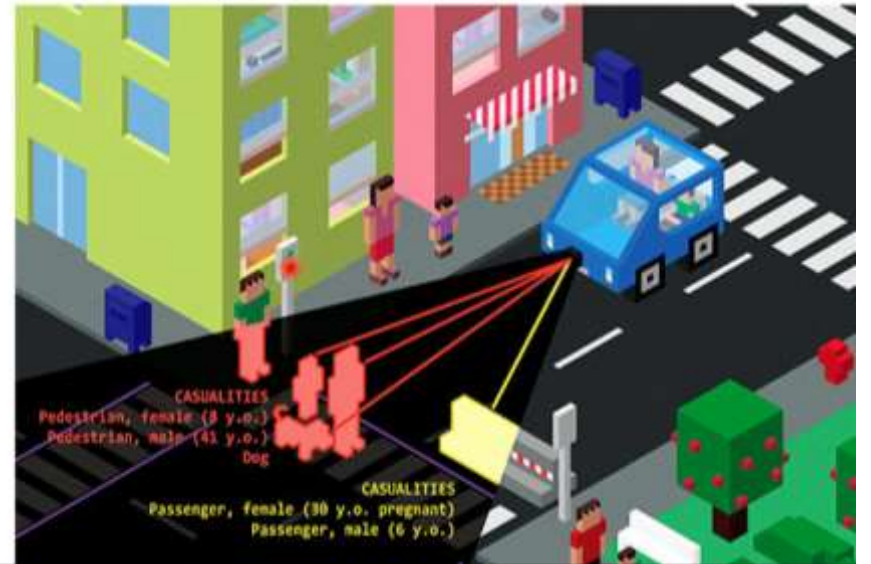
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Cars That Think | Transportation | Self-Driving

## People Want Driverless Cars with Utilitarian Ethics, Unless They're a Passenger

By [Evan Ackerman](#)  
Posted 23 Jun 2016 | 18:00 GMT

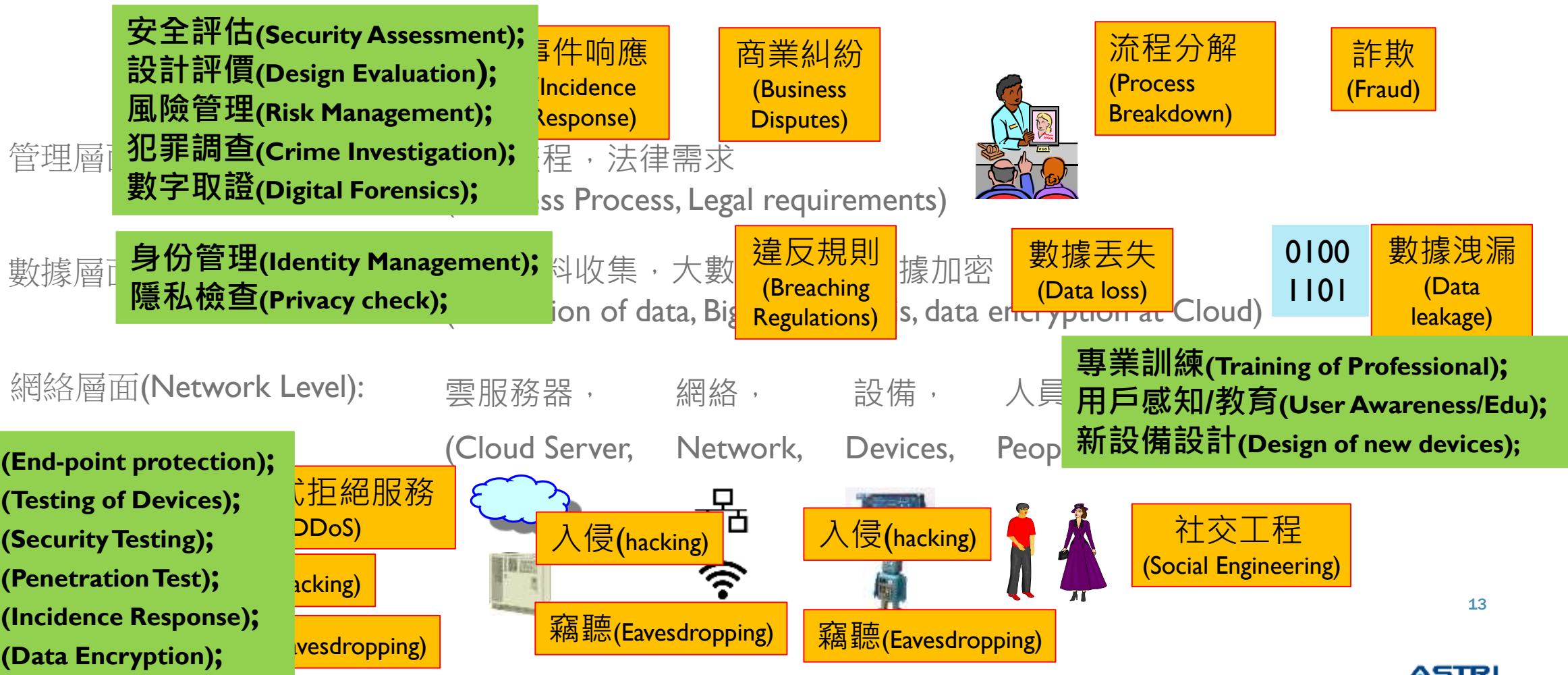
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# 智慧城市: 網絡安全的挑戰



# 智慧城市: 網絡安全的機遇



## 智慧城市: 網絡安全的機遇 (2)

- 上述問題與機會出現於智慧城市的每一個環節。  
(The above-mentioned problems and opportunities appear in EVERY aspects of Smart City.)
- 智慧城市使用各種不同的物聯網設備，因此其管理問題將會比傳統互聯網系統更加複雜。  
(Smart City will use a lot of different, diversified IoT devices, therefore the management problem is more complicated than a traditional Internet system.)
- 犯罪者會使用高級技術發動網絡攻擊，而且其技術也將不斷更新。  
(Criminals will use advanced technology to launch cyberattacks, and their technology will also advance from time to time.)
- 這意味著安全技術的更迫切需要。  
(This implies a greater need of security technology.)
- 網絡安全專家的人力市場需求也更加提升。  
(Also demands a greater number of Cyber Security professionals.)



# 結論

- 個人見解(A simple remark)
  - 實體世界中的系統具備安全組件  
(Physical world systems have safety/security components)
  - 數位世界中的系統必須具備安全組件  
(Digital world systems should have safety/security components)
  - 越來越多的人類活動由實體世界逐漸轉移到數位世界  
(Human activities move more from physical world to digital world)
  - ... 自然而然，我們必須針對數位工作的安全來挹注更多資源與努力  
(... it is natural that, we should put more resources/effort in digital work safety/security)
- 謝謝!
- [lucashui@astri.org](mailto:lucashui@astri.org)