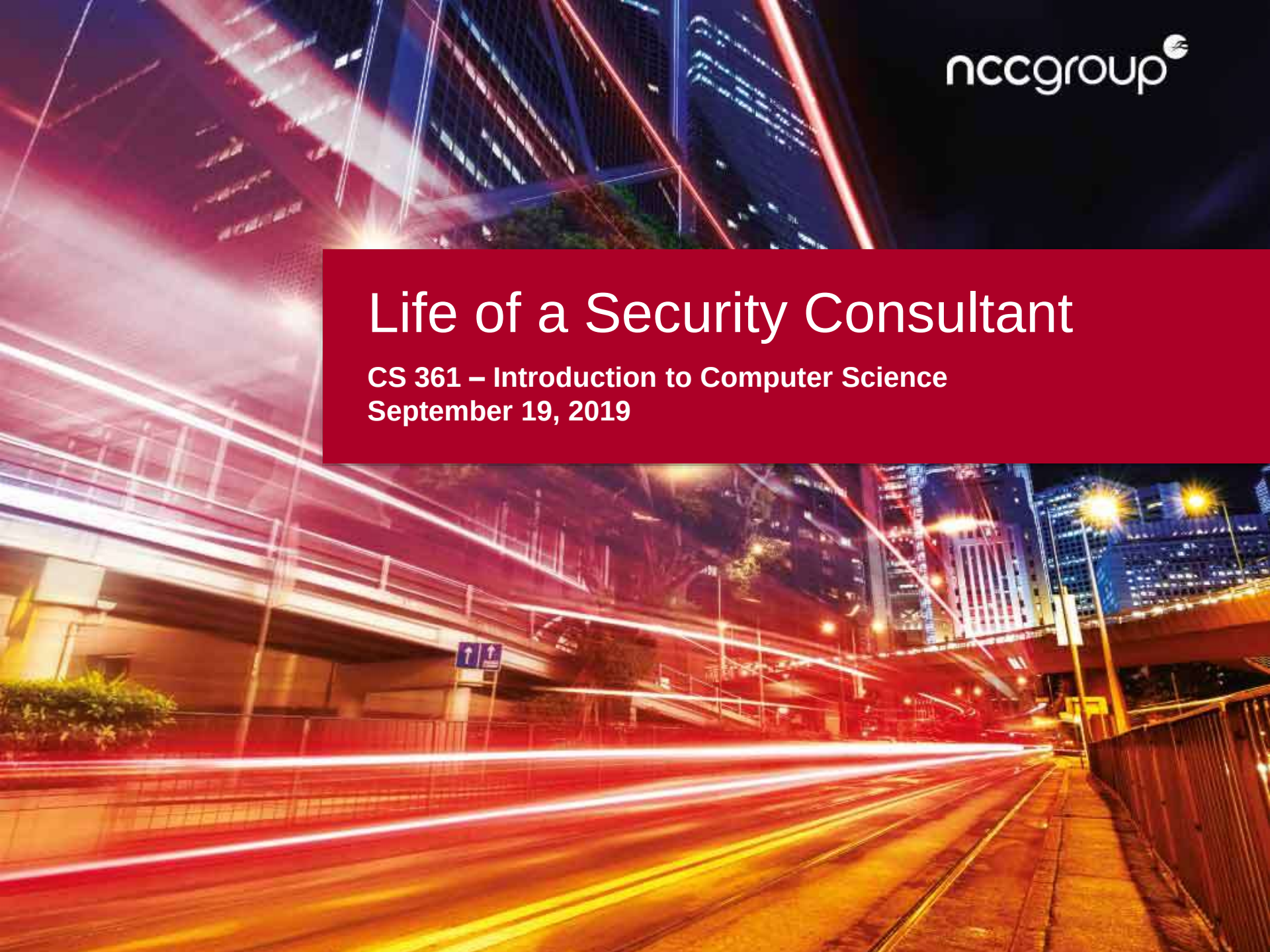

Life of a Security Consultant

CS 361 – Introduction to Computer Science
September 19, 2019

Introductions

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- Principal Security Consultant at NCC Group
- UT CS – Class of 2013

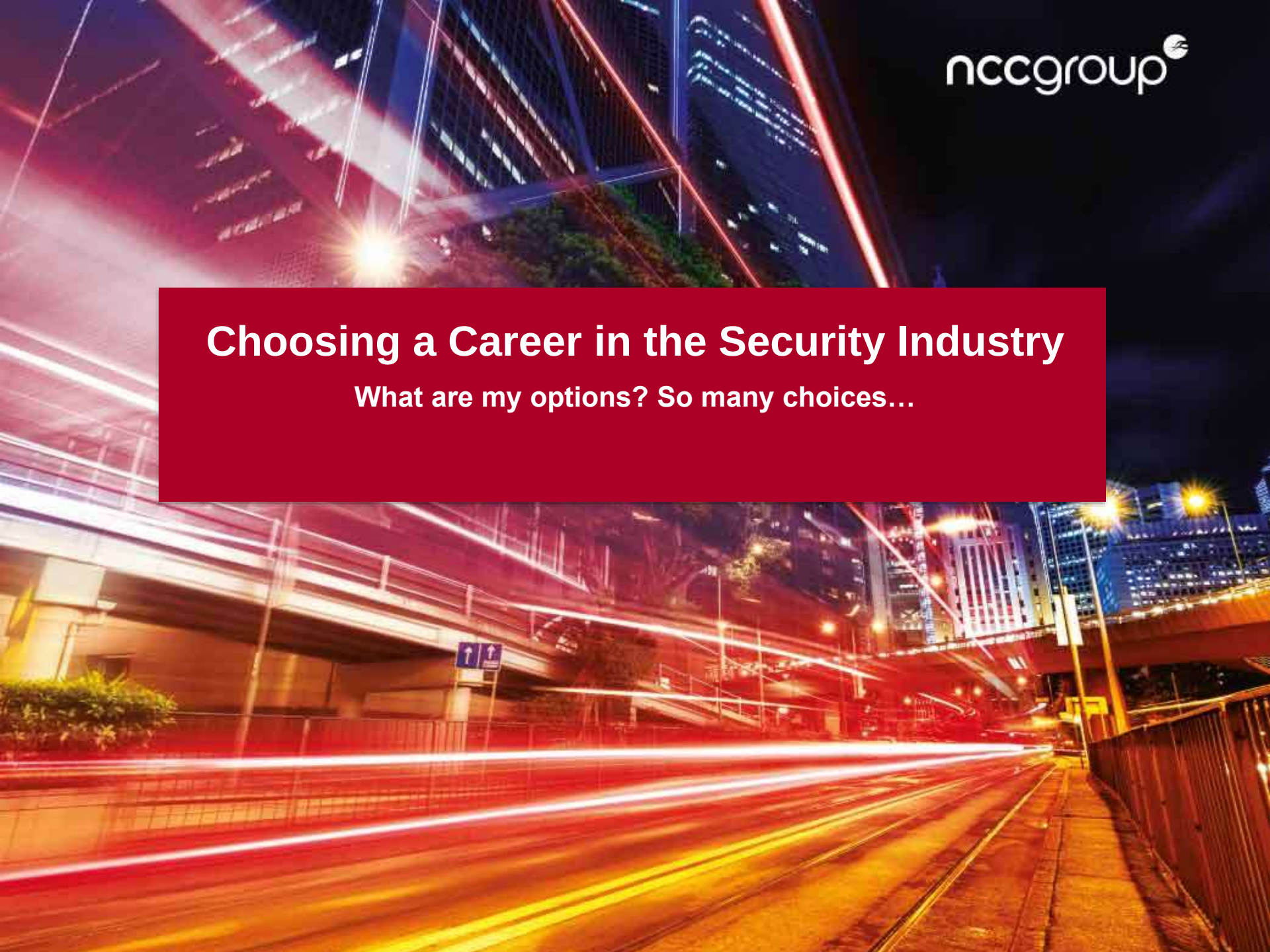
Braden Friscia

- Security Consultant at NCC Group
- RIT Information Security and Forensics – Class of 2014

Life as a Security Consultant - Agenda

- Choosing a Career in the Security Industry
- The Security Consultant Job Role
- Security Consultant Working Practices
- Consultancy Office Hierarchy
- Case Study: The EPOS World Tour!
- Research & Development
- Industry & Community Interaction

Second hit on Google Image Search for 'Security Consultant' ☺



Choosing a Career in the Security Industry

What are my options? So many choices…

Choosing a Security Career

- **Security Ethics**
  - Responsible Disclosure
  - Full Disclosure

- **Current Industry Debates**
  - Disclosure for Security
  - Selling Weapons

- These concepts may shape your career

Choosing a Security Career

- **Software Development**
  - Write (more) secure software; write security software
- **Academia**
  - Teach security concepts to others; security research
- **Internal Security**
  - Bug remediation; internal testing; compliance
- **Crime / BlackHat (!)**
  - It's an option – but don't do this! Hacks might be easy – getting away and making money is hard ☺
- **Security Consultant**
  - Penetration testing; red-teaming; exploit dev.; real-world work

The Security Consultant Job Role

Who are these guys?! This and other questions answered…

The Security Consultant Job Role

- In a nutshell - what does a security consultant do?

A Security Consultant provides advice and guidance to clients to help increase the level of security for that client. Typically this involves carrying out security tests against the client's products or assets and making recommendations for how better to secure them from attack. Products or assets could take any form – computer or non-computer based.

Eh?

The Security Consultant Job Role

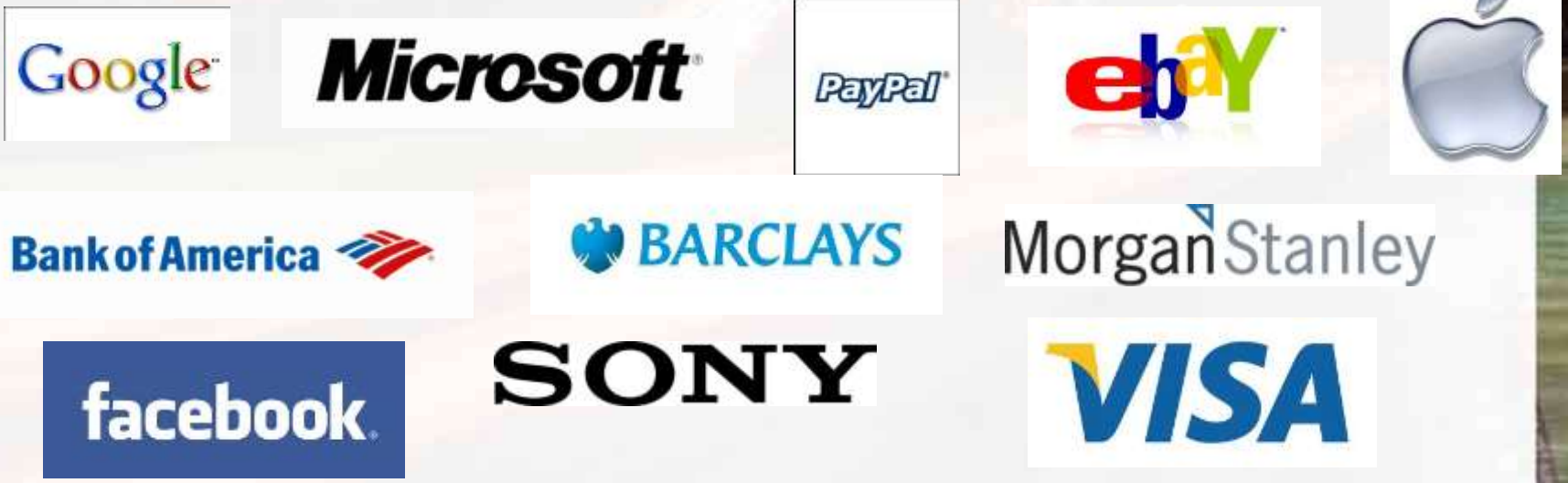
- Okay, but what types or work do they do?
  - Potentially very diverse – depends on their specialism

Penetration testing; security assessment; fuzzing; source code review; wireless security tests; internal network compromises; web application tests; physical security breaches; war dialing; incident response; forensic analysis; build reviews; social engineering; mobile app security; write security tools / software; red-teaming; APT-simulation; IDS/IPS evasion; write reports; provide teaching & training…

- A consultant may do one, more or all of these things!

The Security Consultant Job Role

- Who are your clients? Anyone I've heard of?
- Trusted advisors to over 1,750 clients world wide



The Security Consultant Job Role

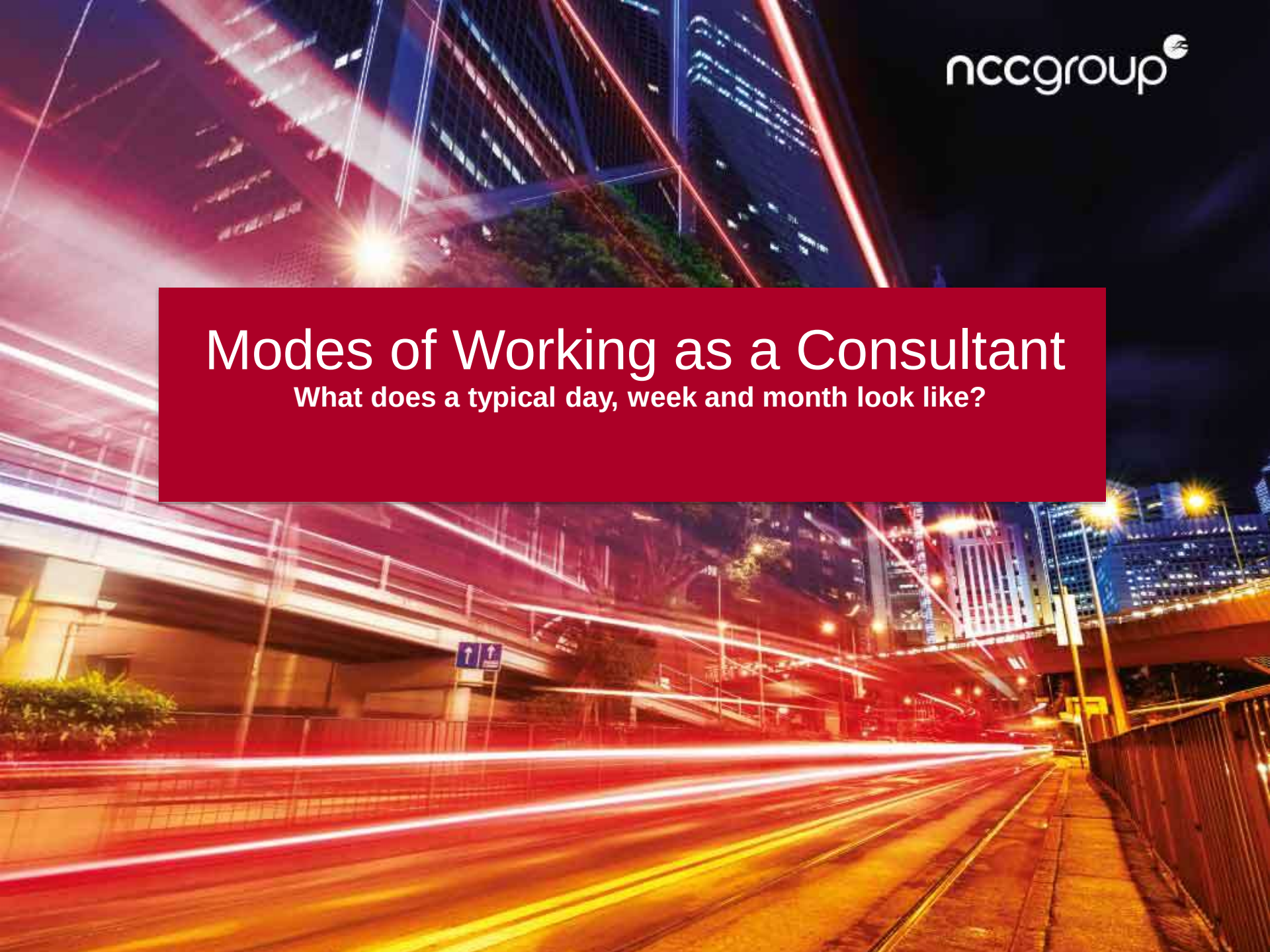
- What background does a Security Consultant have?

- We've seen almost any background you can think of
  - Graduates – Bachelors, Masters, Ph.D.
  - No degree – industry experience, or none
  - Not finished high school – 15 years old (long story)
  - Change in Focus – Sysadmin or Developer
  - No IT experience at all – just a creative thinker!
  - Anyone that likes to 'take things apart'

The Security Consultant Job Role

- But what makes a good Security Consultant?

- Definitely a mixture of things –don't have to have it all…
  - Deconstructive Thinking
  - Problem solving & analysis of complex systems
  - Enthusiasm and passion for the work and industry
  - A good balance between software and infrastructure
  - Basic coding skills to write your own tools
  - Good written and speaking skill – explain concepts well



Modes of Working as a Consultant

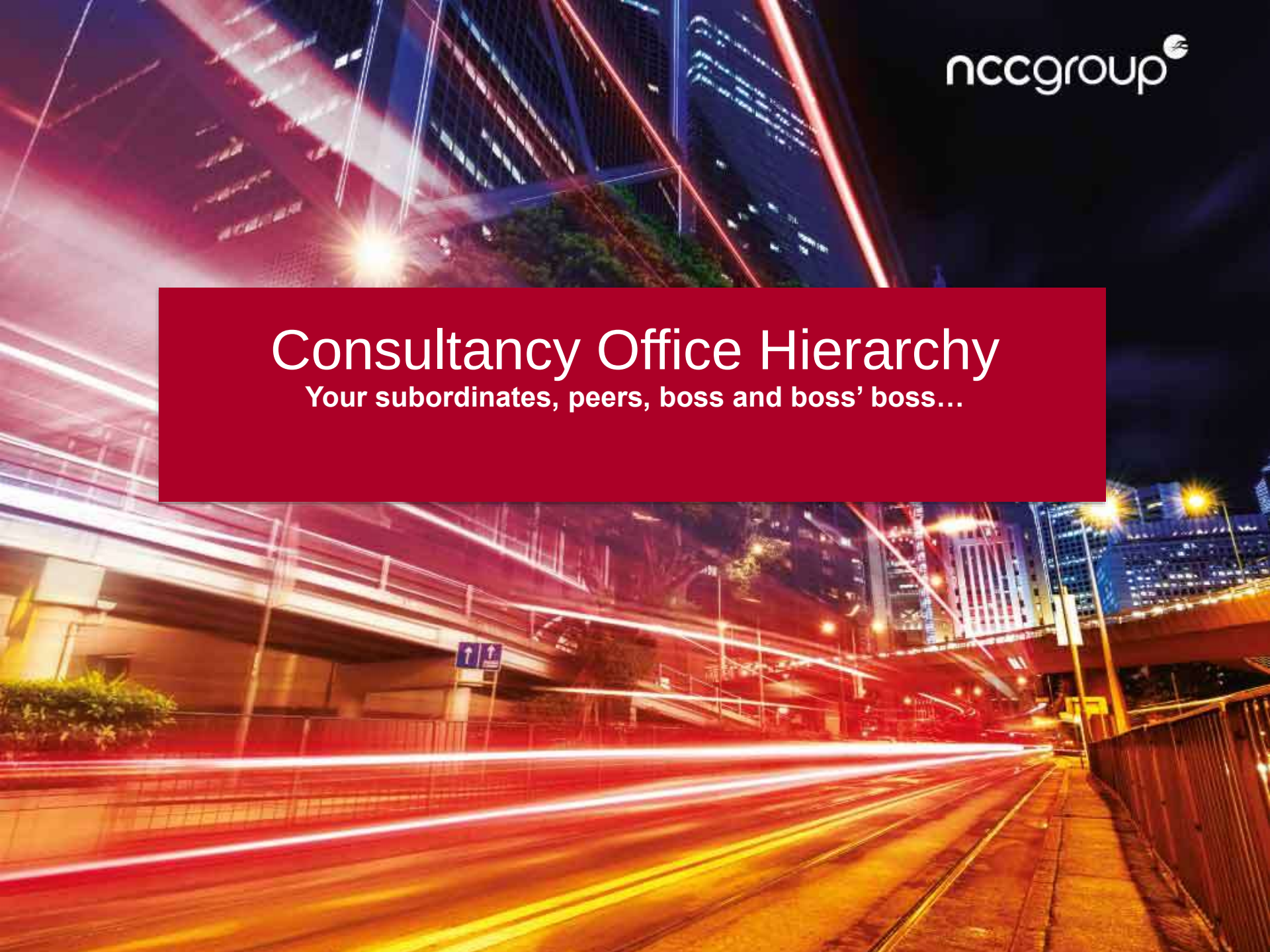
What does a typical day, week and month look like?

Modes of Working as a Consultant

- Where do I go? What do I do?
- **Remote Working** – carrying out security assessment against client assets across the Internet (servers, web sites, VPN endpoints etc.)
- **Onsite Working** – visiting a client's place of business to carry out work against onsite assets (working directly with client staff)
- **Offline Working** – carrying out work that doesn't require a particular location or target (remote writing, source code review etc.)
- **Team Working** – collaborating with team members on projects and research activities either remotely or office based.

Typical Working Practices

- **Pre-Engagement**
  - Help Account Manager decide on technical scope for engagement
  - Prepare for technical aspects of the engagement
  - Take part in team planning & liaison prior to engagement start
- **Engagement**
  - Carry out testing activities as dictated by scope and team structure
  - Produce written evidence and commentary for client reporting
  - Maintain communication with the client in line with project goals
- **Post Engagement**
  - Provide client with agreed end-of-engagement deliverables
  - Carry out post-engagement clean up, data storage etc.
  - Support report contents with client; re-test; presentation



Consultancy Office Hierarchy

Your subordinates, peers, boss and boss' boss…

Consultancy Office Hierarchy

- Consultancy Levels
  1. Security Consultant
  2. Senior Security Consultant
  3. Principal Consultant
  4. Distinguished Consultant

- Management Levels
  1. Account Manager
  2. Supervising Manager
  3. Regional Office Director
  4. Divisional Vice President
  5. Senior VP / C-Level

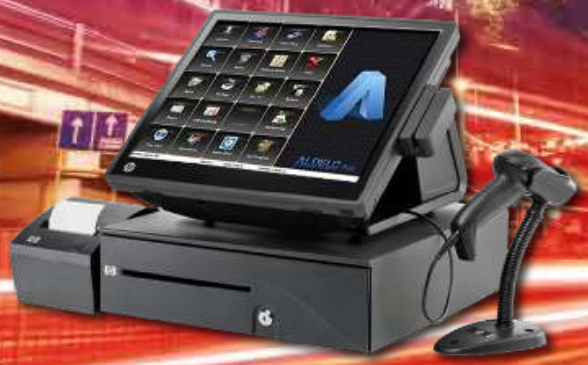
Making the Wheels Go Round

- Operations Managers
- Project Managers
- HR / Payroll Administrators
- General Office Administrators
- IT & Technical Support Staff

Paid Interns & Trainees can also be found in the majority of our offices!

Case Study: The EPOS World Tour

Cool work, not many groupies though…



Case Study: The EPOS World Tour

- Client requirement to test EPOS
- Located in test lab environments:
  - Budapest (2 weeks)
  - Bangkok (1 week)
  - North Carolina (1 week)

- Hybrid security assessment engagement including:
  - Design / Architecture Review
  - Infrastructure Security Assessment
  - Web Application Security Assessment
  - Desktop / Server / Embedded Software Assessment

Hacking EPOS – Eh?

- Electronic Point-of-Sale
- Client / Server / Database
- Embedded Terminal Client (*smart* cash register)
- Card Readers / Terminals
- Industrial Control Systems (ICS)
- Assorted LAN / WAN connectivity equipment

Breaking EPOS

- Unpatched Underlying Microsoft OS
- Missing Key Exploit Mitigations (DEP, ASLR)
- Custom Software for Reliability not Security
- No real software security → buffer overflows etc.
- Poor Attempts to Restrict User Interface Breakout
- Credit Card Numbers & Track Data

- Steal lots of credit card numbers?
- Get free gas / groceries?
- Hack the payment processor (bank)? ☺

Research & Development

When is a Consultant not a Consultant?

Research & Development

- **Consultancy** – Typically a client paid engagement with the focus on scrutiny and remediation advice for a specific system, application asset etc.

- **Research** – Typically not funded by a client, but instead undertaken by a consultant to further knowledge or capabilities within a certain key area of interest.

Research projects of specific worth are funded and supported by NCC to achieve certain goals.

Research & Development

- **NCC Supported Research**

1. Consultants submit research topic requests
2. Research subjects are selected that have clear benefits
3. NCC provides scheduled time for the consultant
4. Monetary budget may be provided for equipment etc.
5. Research results are compiled into a technical paper
6. Supporting tools maybe written or exploits etc.
7. NCC responsible disclosure policy is adhered to at all times
8. Paper is used to gain access to key industry conferences
9. Research findings are presented at industry conference
10. Reputation increases for Researcher and NCC

Research & Development

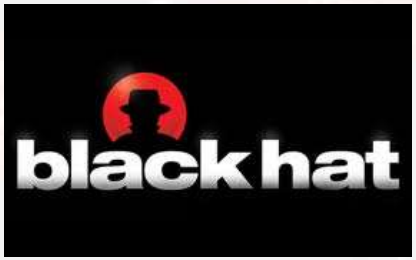
- Additional Research Opportunities
  - Quarterly & Annual Bug Finding Challenge
  - Product Assessment Challenge (PAC)
  - Client Sponsored Research
  - Hackathon Events

Industry & Community Interaction

Making a name for yourself, or simply catching up with old friends…

Industry & Community Interaction

- Active participation in the security industry is actively encouraged! This can take many forms:



  - Attending or speaking at conferences
  - Teaching training courses at public events
  - Participation in regional groups such as OWASP, 2600 etc.
  - Volunteering for charities (linked to the industry or not)
  - Blogging or tool development
  - Continuing relationships with academia

Locations

North America

Atlanta

Austin

Chicago

New York

San Francisco

Seattle

Sunnyvale

Europe

Manchester - Head Office

Amsterdam

Basingstoke

Cambridge

Copenhagen

Cheltenham

Edinburgh

Glasgow

Leatherhead

Leeds

London

Luxembourg

Milton Keynes

Munich

Wetherby

Zurich

Australia

Sydney

Points of contact

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- https://www.nccgroup.com/us/about-us/newsroom-and-events/blog/2012/december/so-you-want-to-be-a-security-consultant/
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- https://www.linkedin.com/in/tony-cargile-7073b151/
- https://www.linkedin.com/in/braden-friscia-52544142/