OVERVIEW

- My Background

- Cloud Security Myths

- Cloud Models

- Cloud Security Considerations

- Cloud and Smart City

- Final Takeaway

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MY BACKGROUND

- Over 20 years experience in Cyber Security

  ➢ Head of Cyber GRC for DarkMatter

  ➢ Head of Security Regulations for SalesForce.com

  ➢ PwC – Cyber Security Practice Lead

- Editor – ISO 27007

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CLOULD SECURING MYTHS

- I don't have to worry about Compliance or Security

- Cloud is insecure by default or for that matter – Cloud is secure by default

- My data is encrypted – All the time

- It's my data – I will get it back when I need it

- It's CHEAP

- I have to do it because everyone else is doing it

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WHAT ARE VARIOUS CLOUD MODELS AND SERVICES?

- IaaS

- PaaS

- SaaS

- Private Cloud

- Public Cloud

- Hybrid Cloud

USES OF CLOUD

- Consumer

- Enterprise

- City

- Country

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Infrastructure as a Service

- IaaS

  - What does it entail?

  - Why would an Enterprise or a City use it?

  - What will be the Security considerations?

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Platform as a Service

- PaaS

  - What does it entail?

  - Why would an Enterprise or a City use it?

  - What will be the Security considerations?

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Software as a Service

- SaaS

  - What does it entail?

  - Why would an Enterprise or a City use it?

  - What will be the Security considerations?

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Private Cloud

- Private Cloud

    - What does it entail?

    - Why would an Enterprise or a City use it?

    - What will be the Security considerations?

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Public Cloud
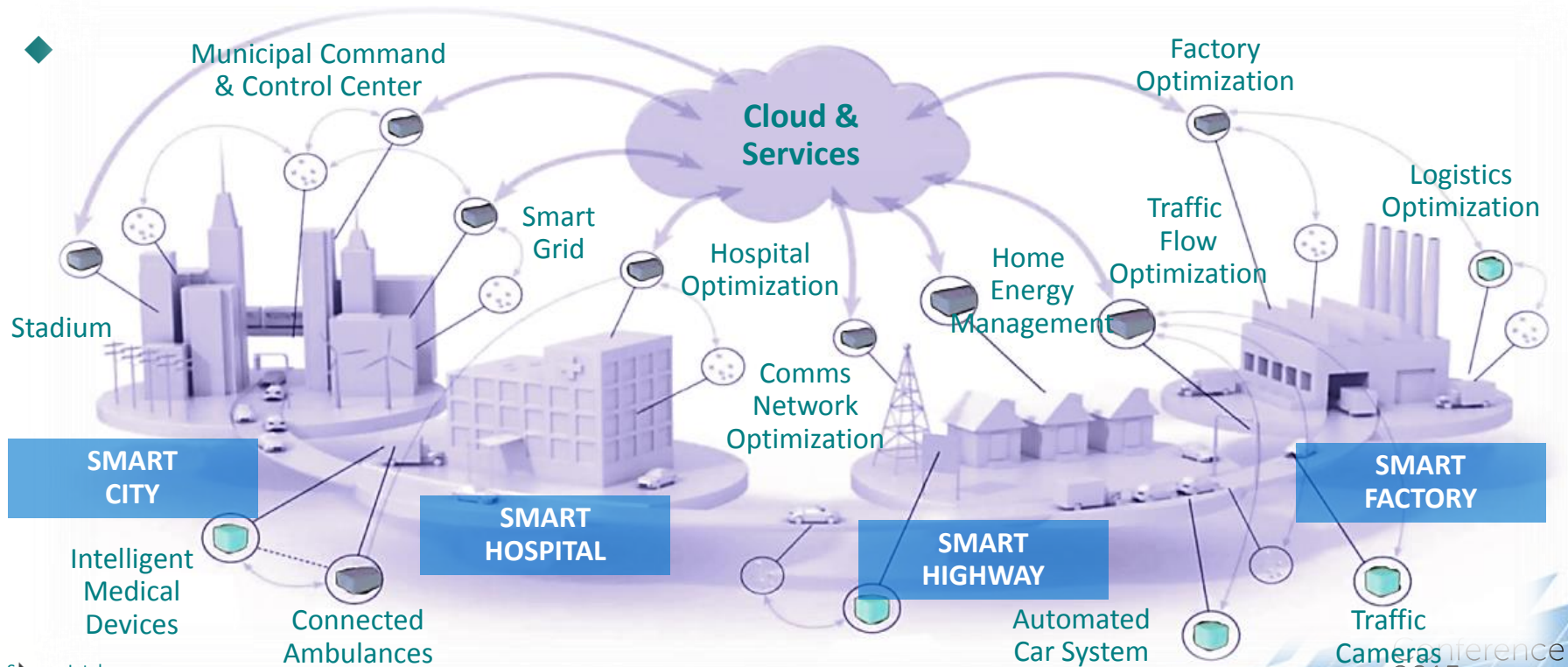
- Public Cloud

  - What does it entail?

  - Why would an Enterprise or a City use it?

  - What will be the Security considerations?

Smart City on a Cloud

Municipal Command & Control Center

Cloud & Services

Factory Optimization

Logistics Optimization

Smart Grid

Traffic Flow Optimization

Hospital Optimization

Home Energy Management

Stadium

Comms Network Optimization

SMART CITY

SMART HOSPITAL

SMART HIGHWAY

SMART FACTORY

Intelligent Medical Devices

Connected Ambulances

Automated Car System

Traffic Cameras

Source: Intel

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Smart City – Cyber Security Effects

◆ SMART Cities = Larger Attack Surface

◆ SMART Convenience = Interconnection = Attack Surface

◆ Huge Cascading effects and Consequences

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Smart City – Cyber Security Effects

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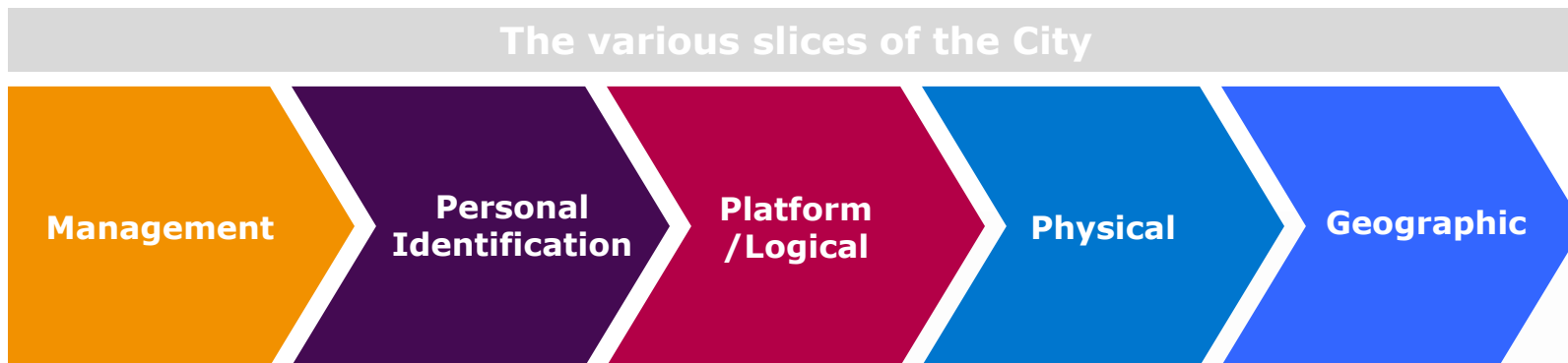# In case of a Breach

- ◆   Citizens are deceived

- ◆   Performance degradation

- ◆   Delay certain functions

- ◆   Destroy certain capabilities

- ◆   Disruption

- ◆   Divert resources

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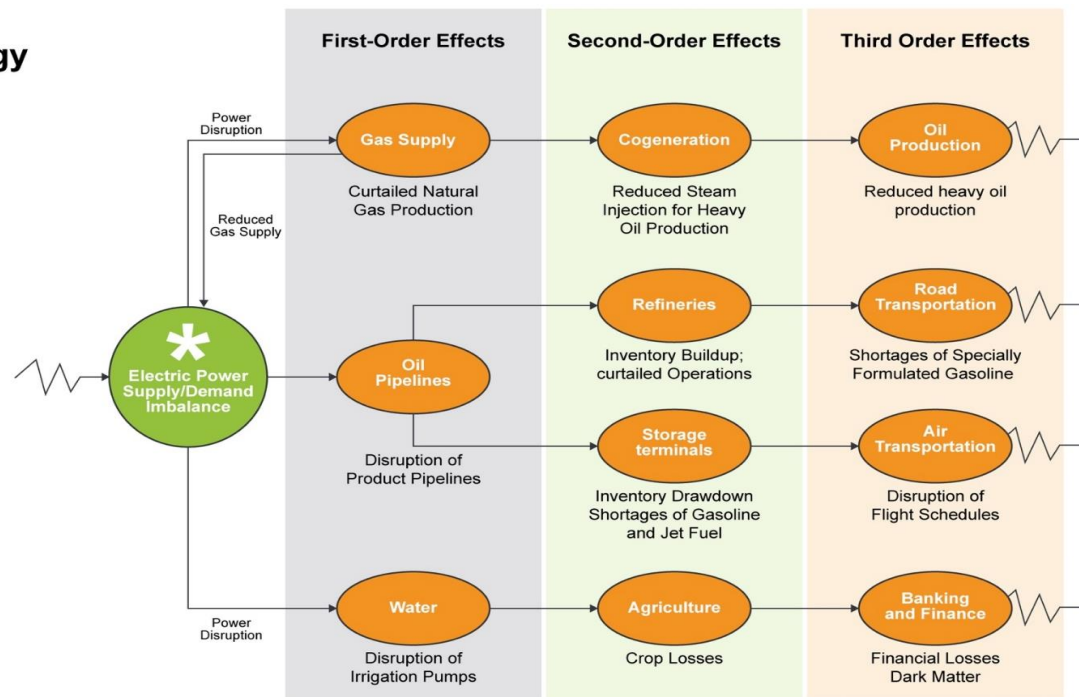
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Risk Assessment

Risk assessment and posture of a City
is difference from an organization

The various slices of the City

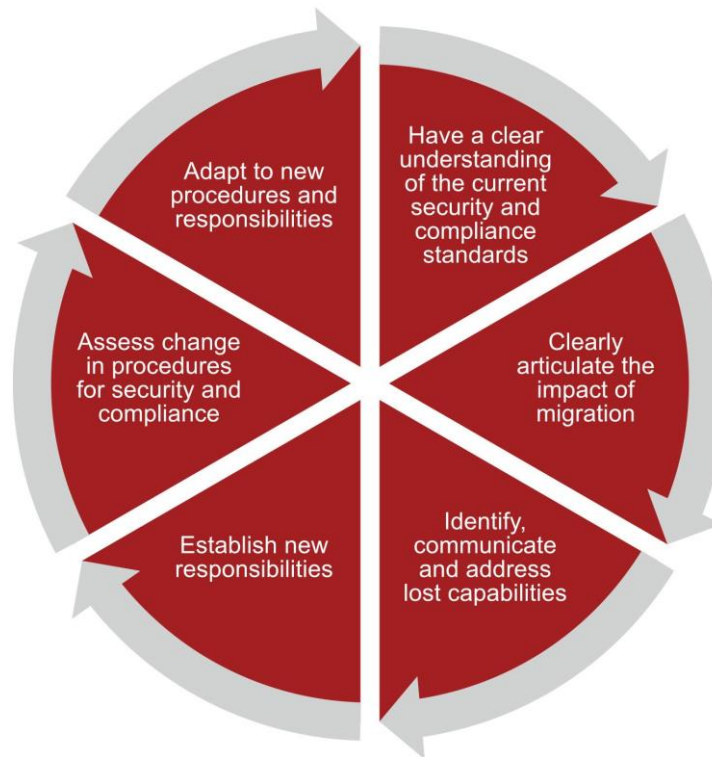| Management | Personal Identification | Platform /Logical | Physical | Geographic |

Cascading Effects

Factors/Forces Contributing to Energy Crisis in California

- Deregulation Policies
- New Energy Marketplace Dynamics
- Tight, High-Cost Gas Supplies
- Utility Financial Crisis
- Substantial Load Growth
- Lack of New Generating and Transmission Capacity
- Aging Fleet of Power Plants
- Low Hydro Conditions
- Transmission/Environmental Constraints

First-Order Effects | **Second-Order Effects** | **Third Order Effects**

Power Disruption

Reduced Gas Supply

Power Disruption

Electric Power Supply/Demand Imbalance

Gas Supply — Curtailed Natural Gas Production

Oil Pipelines — Disruption of Product Pipelines

Water — Disruption of Irrigation Pumps

Cogeneration — Reduced Steam Injection for Heavy Oil Production

Refineries — Inventory Buildup; curtailed Operations

Storage terminals — Inventory Drawdown Shortages of Gasoline and Jet Fuel

Agriculture — Crop Losses

Oil Production — Reduced heavy oil production

Road Transportation — Shortages of Specially Formulated Gasoline

Air Transportation — Disruption of Flight Schedules

Banking and Finance — Financial Losses Dark Matter

MANAGE SECURITY AND COMPLIANCE RISKS

- Moving to the cloud requires ongoing preparation, planning, management and oversight

- You still maintain responsibility or security and compliance after the move

Adapt to new procedures and responsibilities

Have a clear understanding of the current security and compliance standards

Clearly articulate the impact of migration

Identify, communicate and address lost capabilities

Establish new responsibilities

Assess change in procedures for security and compliance
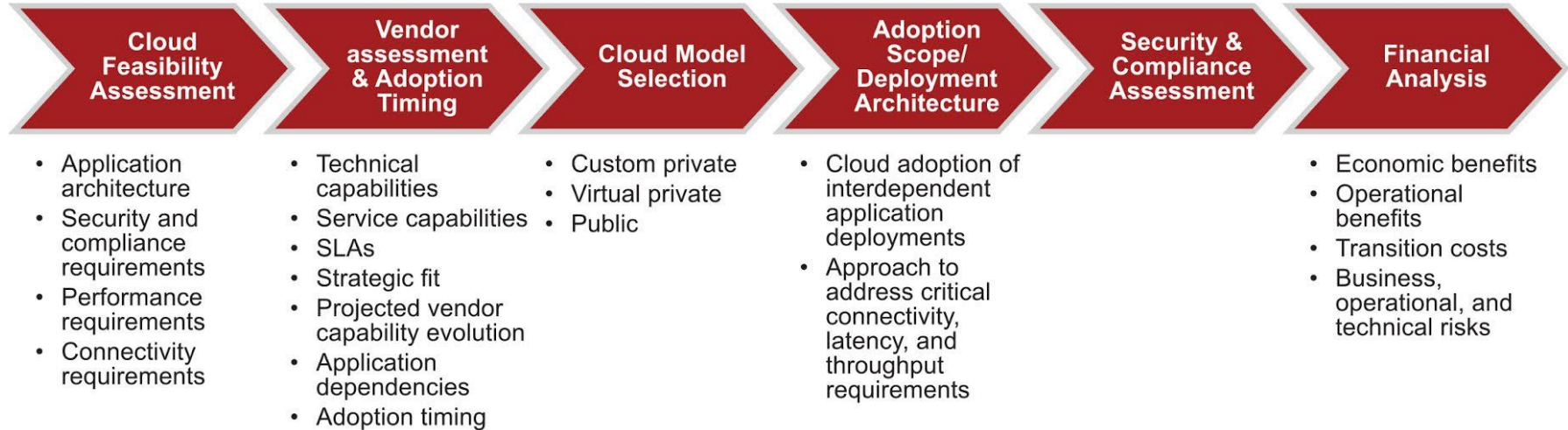
>DARKMATTER
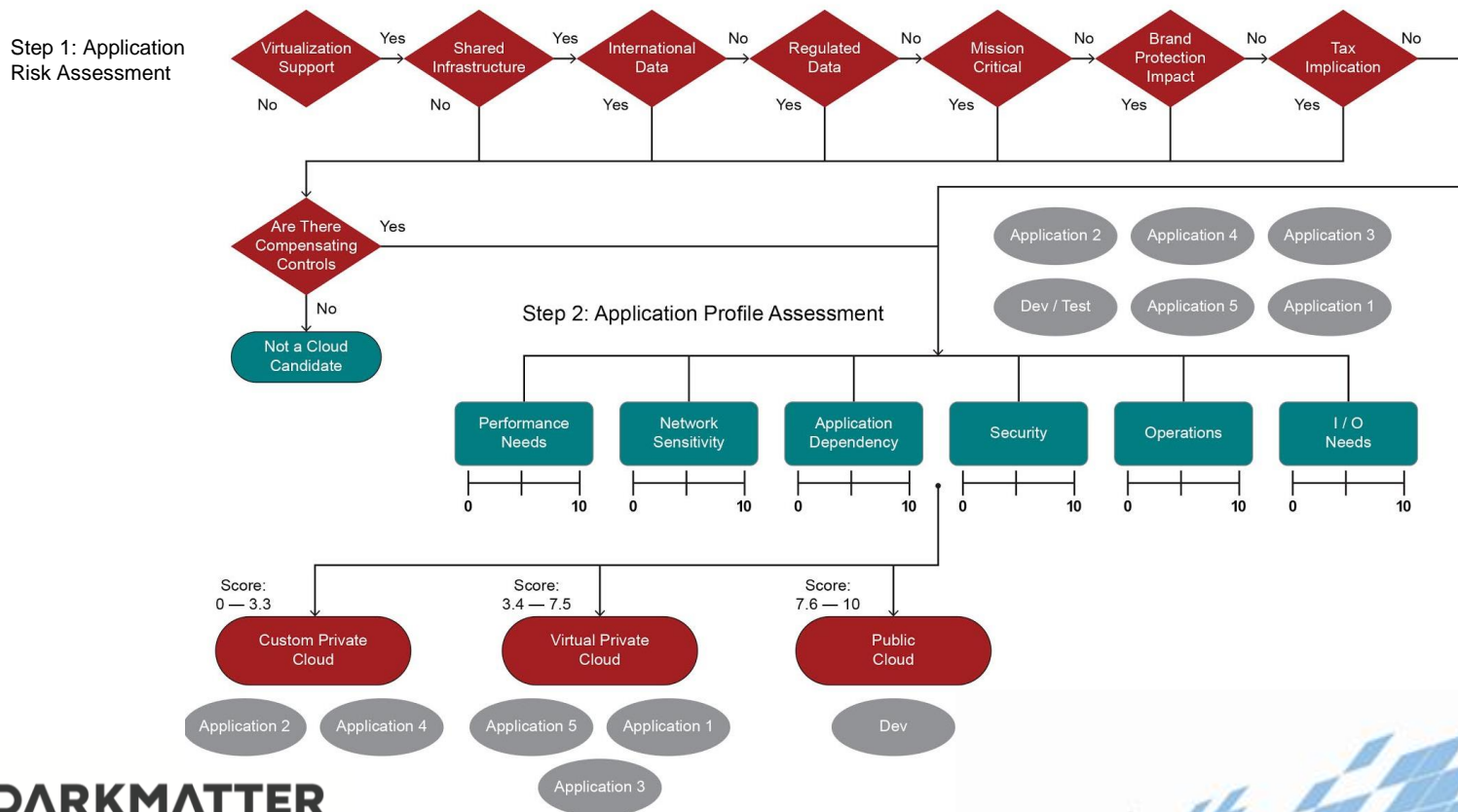
CLOUD SECURITY CONSIDERATIONS

Domain	Consideration/Discussion Point
Compliance and Risk Management	Cities shifting part of their business to the cloud are still responsible for compliance, risk, and security management
Identity and Access Management	Identities may come from different providers and entities, and providers must be able to federate from on-premise to the cloud, as well as enable collaboration across organization and country borders
Service Integrity	Cloud-based services should be engineered and operated with security in mind, and the operational processes should be integrated into the City's security management
Endpoint Integrity	As cloud-based services originate – and are then consumed – on-premise, the security, compliance, and integrity of the endpoint have to be part of any security consideration
Information Protection	Cloud services require reliable processes for protecting information before, during, and after the transaction

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SMART CITY – CLOUD FEASIBILITY ASSESSMENT

Cloud Feasibility Assessment	Vendor assessment & Adoption Timing	Cloud Model Selection	Adoption Scope/ Deployment Architecture	Security & Compliance Assessment	Financial Analysis
• Application architecture • Security and compliance requirements • Performance requirements • Connectivity requirements	• Technical capabilities • Service capabilities • SLAs • Strategic fit • Projected vendor capability evolution • Application dependencies • Adoption timing	• Custom private • Virtual private • Public	• Cloud adoption of interdependent application deployments • Approach to address critical connectivity, latency, and throughput requirements		• Economic benefits • Operational benefits • Transition costs • Business, operational, and technical risks

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WHAT GOES IN CLOUD?

- Cloud can be a great enabler for a Smart City

- Security breach in a Cloud environment can be a huge detractor for citizens using Smart city services and a huge blow to city's reputation

- Cloud is not one size fits all – specially when it comes to City wide support and implementation

- Don't start with – I want to do Cloud; Start with – What do I want to achieve and what's my success factors

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