Fundamentals of managing and securing your SLES workloads on Azure

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Welcome to City Power & Light

Welcome to the CP&L outage reporting tool. From here you can view all reported outages via the dashboard screen, or report a new outage. Our technicians will address outages as soon as possible.

Dashboard  Report Outage
City Power and Light migration and modernization journey

On-premises

App

Data

Infrastructure

Rehost

Refactor

Rearchitect

Virtual Machines

Containers

App, Data, & AI Services

Security

Management
Why Azure for SUSE workloads?
>95% of Fortune 500 use Microsoft Azure
54 Azure regions

More than AWS & Google combined
Benefits of running SUSE workloads on Azure

**Optimized Experience**
Access the latest and most advanced technologies— from Azure optimized SLES kernels to Cloud Application Platform with Azure Kubernetes service.

**Enterprise Support**
24x7 global, collaborative support. SLES for SAP and SLES for HPC are certified to run on Azure.

**Flexible Pricing**
Bring your own license. Or use on-demand pay-as-you-go pricing. Or use Azure reservations for SUSE software appliance.
Your choice at every level

<table>
<thead>
<tr>
<th>DevOps</th>
<th>Nagios</th>
<th>Vagrant</th>
<th>Grunt</th>
<th>Android</th>
<th>Xamarin</th>
<th>Docker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>Chef</td>
<td>Puppet</td>
<td>Ansible</td>
<td>Saltstack</td>
<td>Mist.io</td>
<td>Libcloud</td>
</tr>
<tr>
<td>Applications</td>
<td>WordPress</td>
<td>Joomla</td>
<td>Drupal</td>
<td>Apprenda</td>
<td>Amazon</td>
<td>Couchbase</td>
</tr>
<tr>
<td>App frameworks and tools</td>
<td>PHP</td>
<td>node.js</td>
<td>pdb</td>
<td>Ruby</td>
<td>TJ</td>
<td>Eclipse</td>
</tr>
<tr>
<td>Databases and middleware</td>
<td>Redis</td>
<td>Cleardb</td>
<td>Cloudera</td>
<td>MySQL</td>
<td>MongoDB</td>
<td>Couchbase</td>
</tr>
</tbody>
</table>
Step 1 - Rehost

On Premises

- Web Tier
- API Tier
- Data Tier

Local Dev Box

Internet

Admin

Azure

Resource Group

Virtual Network

Dev Subnet

NSG

Virtual Machine

Public IP

- spring-boot
- MongoDB
Demo- Rehost
Step 2 - Refactor

- Resource Group
  - Virtual Network
    - Dev Subnet
      - Public IP
      - Azure Virtual Machine
        - NSG
  - Cosmos DB (Mongo DB API)
  - Blob Storage
  - Redis Cache

- Internet
- Admin
Step 2 - Refactor

Resource Group

Virtual Network

Dev Subnet

Azure Virtual Machine

Public IP

Internet

Admin

Cosmos DB (Mongo DB API)

Blob Storage

Redis Cache
Demo- Refactor
Challenges with moving to Azure

Built-in Azure services options to keep your Azure and hybrid resources secure and well-managed

How do you set policies and control cloud spend?  
How do you ensure that your environment is secure?
Governance in Azure
Traditional approach needs rethinking

Speed versus control

Speed

Development
- Self-service
- Production access
- Rapid releases

IT Governance
- Policies
- Security
- Cost Mgmt

Control
Built-in modern governance

**Speed and control**

- Development
  - Policies
  - Mgmt as code
  - Agile Development

- Blueprints
  - Templates
  - RBAC

- IT Governance
  - Management Groups
  - Cost Management
  - Resource Graph
  - Policies
  - Security
  - Cost Control
**Azure Cost Management**

Now available in preview on Azure portal for EA customers

Native within Azure Portal, on by default with improved experience

Monitor cloud usage and spend in a single, unified view

Extend cost management to PowerBI or to your custom applications
Securing your Azure and hybrid resources
Gain unmatched security

$1B+ annual investments
Over 3500 security experts
Trillions of diverse signals
Simplify security management with Azure services

Identity & access management
- Azure Active Directory
- Multi-Factor Authentication
- Role Based Access Control
- Azure Active Directory (Identity Protection)

Data protection
- Encryption (Disks, Storage, SQL)
- Azure Key Vault
- Confidential Computing

Network security
- VNET, VPN, NSG
- Application Gateway (WAF), Azure Firewall
- DDoS Protection Standard
- ExpressRoute

Threat protection
- Azure Security Center
- Microsoft Antimalware for Azure

Security management
- Azure Monitor
- Log Analytics

+ Partner Solutions

Network security
- Identity & access management
- Data protection
- Network security
- Threat protection
- Security management

Identity & access management
- Data protection
- Network security
- Threat protection
- Security management

Data protection
- Network security
- Threat protection
- Security management

Network security
- Threat protection
- Security management

Threat protection
- Security management

Security management
Introducing Microsoft Azure Sentinel

Cloud-native SIEM for intelligent security analytics for your entire enterprise

Limitless cloud speed and scale

Bring your Office 365 data for free

Easy integration with your existing tools

Faster threat protection with AI
Azure Security and Azure Governance Demo
Challenges with moving to Azure

Governance

Security

Cost Management
Policy
Blueprint

Azure Security Center
Azure Key Vault
Azure Sentinel
Azure Firewall
Step 3 - Rearrange

Internet

Resource Group

Virtual Network
- Web Subnet
- Mgmt Subnet
- Public Load Balancer
- Virtual Machine Availability Set
- NSG
- SSH (whitelisted IP)
- Jumpbox

Virtual Machine
- Availability Set
- Internal Load Balancer
- API Subnet
- Virtual Machine Availability Set
- NSG

Document DB
(Mongo DB API)

Blob Storage

Redis Cache

Admin
City Power and Light – Management Add-ons

How do you know if you have architected it right?

Is there a way to create a repeatable and reliable process?
Resiliency
Delivering resilient applications in Azure

**Backup**
When your data is corrupted, deleted, or lost you can restore it

**High availability**
When your applications or infrastructure have failure, run a second instance in the primary site

**Disaster recovery**
When your primary site has failures, run your applications in secondary site
Architecting for high availability in Azure

**Industry-only**
- VM SLA 99.9%

**High availability SLA**
- VM SLA 99.95%
- VM SLA 99.99%

**Disaster recovery**
- Regions 54

**Single VM**
- Protection with Premium Storage

**Availability sets**
- Protection against failures within datacenters

**Availability zones**
- Protection from entire datacenter failures

**Site Recovery & Region pairs**
- Protection from disaster with Data Residency compliance

AZs available across US, Europe and Asia... more regions coming soon
Automation in Azure
Automation

Enable consistent delivery and operations of cloud quickly and easily

**Provision**

Azure Resource Manager
Deliver repeatable and consistent infrastructure as code with VM extensions and resource manager templates

**Script**

Azure Cloud Shell
Use PowerShell or Bash to operate your infrastructure and apps with scripts authored in languages including Python, Node.js and .NET

**Orchestrate**

Runbooks & Functions
Use functions, logic apps or runbooks to automate and deliver reliable and repeatable solutions

Simplify cloud management from the command line
Automation and Resiliency Demo
City Power and Light – Management Add-ons

**Governance**
- Azure Security Center
- Azure Key Vault
- Azure Sentinel
- Azure Firewall

**Security**
- Azure Firewall
- Azure Key Vault
- Azure Sentinel
- Azure Site Recovery

**Resiliency**
- Availability Zones
- Backup
- Azure Site Recovery

**Automate**
- ARM templates
- Azure Cloud Shell
- Jenkins
# City Power and Light – Management Add-ons

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<thead>
<tr>
<th>Governance</th>
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</tr>
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<tbody>
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Monitoring your applications and infrastructure
Azure Monitor

Full observability for your infra, app and network

Built-in telemetry
A common platform for all metrics, logs and other monitoring telemetry

Data driven insights
Advanced querying and analytics powered by machine learning capabilities

Partner integration
Rich ecosystem of popular DevOps, issue management, SIEM, and ITSM tools
Azure Monitor

Insights
- Application
- Container
- VM
- Monitoring Solutions

Visualize
- Dashboards
- Views
- Power BI
- Workbooks

Analyze
- Metrics Explorer
- Log Analytics

Respond
- Alerts
- Autoscale

Integrate
- Event Hubs
- Logic Apps
- Ingest & Export APIs

Stores

Metrics

Logs

Application
Infrastructure
Network
Custom
Demo – Azure Monitor
# City Power and Light – Management Add-ons

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City Power & Light – Global, Scalable and Resilient

Resource Group (West US)
- Virtual Network
  - API Subnet
  - Web Subnet
- Mgmt Subnet
  - Jumpbox
- Virtual Machine Availability Set
- Internal Load Balancer
- Public Load Balancer
- Redis Cache
- Cosmos DB
- App Storage
- CDN

Resource Group (East US)
- Virtual Network
  - Web Subnet
  - API Subnet
- Mgmt Subnet
  - Jumpbox
- Virtual Machine Availability Set
- Internal Load Balancer
- Public Load Balancer
- Redis Cache

Traffic Manager
- Internet
- Admin

Internet Traffic Manager
- Admin

Public Load Balancer
- Web Subnet
- Mgmt Subnet
- Redis Cache

Cosmos DB
- App Storage
- CDN
Turn on Security and Management for your Azure workloads

Migrate with confidence

- Resiliency: Availability Zones, Backup, Azure Site Recovery
- Automate: ARM templates, Azure Cloud Shell, Jenkins, Ansible
- Governance: Policy, Cost Management, Blueprint
- Monitoring: Azure Advisor
Thank you.
# Azure: Trusted

## Global
- ISO 27001
- ISO 27018
- ISO 27017
- ISO 22301
- SOC 1 Type 2
- SOC 2 Type 2
- SOC 3
- CSA STAR Self-Assessment
- CSA STAR Certification
- CSA STAR Attestation

## Regional
- Argentina PDPA
- EU Model Clauses
- UK G-Cloud
- China DCP
- China GB 18030
- China TRUCS
- Singapore MTCB
- Australia NAPCoSSL
- New Zealand GCIC
- Japan My Number Act
- ENISA IAF
- Japan CS Mark Gold
- Spain ENISA
- Spain DPIA
- Germany Privacy Shield
- Germany IT Grundschutz

## Industry
- PCI DSS Level 1
- CDSA
- MPAA
- FACT UK
- Shared Assessment
- FISIC Japan
- HIPAA HITRUST Act
- HITRUST
- NIST
- GS
- 21 CFR Part 11
- IG ToolBox UK
- FERPA
- GLBA
- FFIEC

## US Gov
- FedRAMP Moderate
- FedRAMP High
- DoD DISA SRG Level 2
- DoD DISA SRG Level 4
- DoD DISA SRG Level 5
- NIST SP 800-37
- NIST 140-2
- Section 508 VPAT
- ITAR
- CJIS
- IRS 1075
54 Azure regions

More than AWS & Google combined
Migration and Modernization Journey

On-premises

App
Data
Infrastructure

Migration & Modernization
- Rehost
- Refactor
- Rearchitect

Cloud-native
- Rebuild/New

SaaS
- Replace

Virtual Machines
Containers
App, Data, & AI Services

Security | Management
Migration drivers

- Urgent capacity needs
- Software and hardware refresh
- Security threats
- Compliance
- Application innovation
- Quickly integrate acquisitions
- Datacenter contracts expiry
- Software end of support
Migration drivers

- Urgent capacity needs
- Quickly integrate acquisitions
- Datacenter contracts expiry
- Software and hardware refresh
- Security threats
- Compliance
- Application innovation
- Software end of support
Step 3 - Rearrange

- Internet
- Admin (whitelisted IP)
- Public Load Balancer
- Virtual Network
  - Web Subnet
  - Virtual Machine Availability Set
  - NSG
  - Mgmt Subnet
  - NSG
  - Jumpbox
- API Subnet
- Internal Load Balancer
- Virtual Machine Availability Set
- NSG
- Document DB (Mongo DB API)
- Blob Storage
- Redis Cache
Towards the future - Multi region deployments