



Telecommunications Power Dependencies

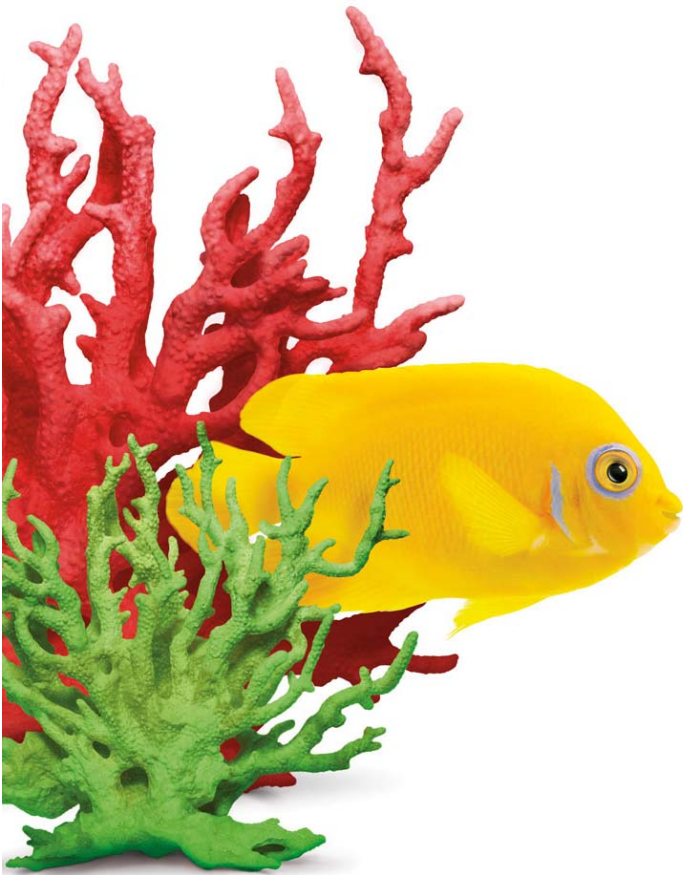
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Manager, Risk Management

TELUS Communications

Location – EPICC Forum, Richmond, BC

Date – April 29, 2009





Agenda

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- About TELUS
- Anatomy of a Telecommunications Network
- Power Dependencies
- Impacts of July 14, 2009 event
- Lessons learned





About TELUS

About TELUS

- **TELUS is a leading national telecommunications company in Canada**
- **\$9.7 billion of annual revenue and 11.6 million customer connections including 6.1 million wireless subscribers, 4.2 million wireline network access lines and 1.2 million Internet subscribers**
- **TELUS provides a wide range of communications products and services including data, Internet Protocol (IP), voice, entertainment, and video**
- **Committed to being Canada's premier corporate citizen, we give where we live. Since 2000, TELUS and our team members have contributed \$135 million to charitable and not-for-profit organizations, and volunteered more than 2.6 million hours of service to local communities**
- **Nine TELUS Community Boards across Canada lead our local philanthropic initiatives**





Telecommunications Network Anatomy

Elements of a network

- What comprises a communication network?

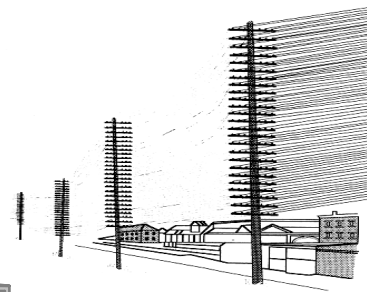
- the user



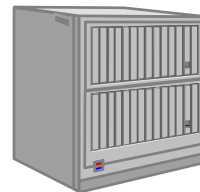
- the user interface



- outside plant



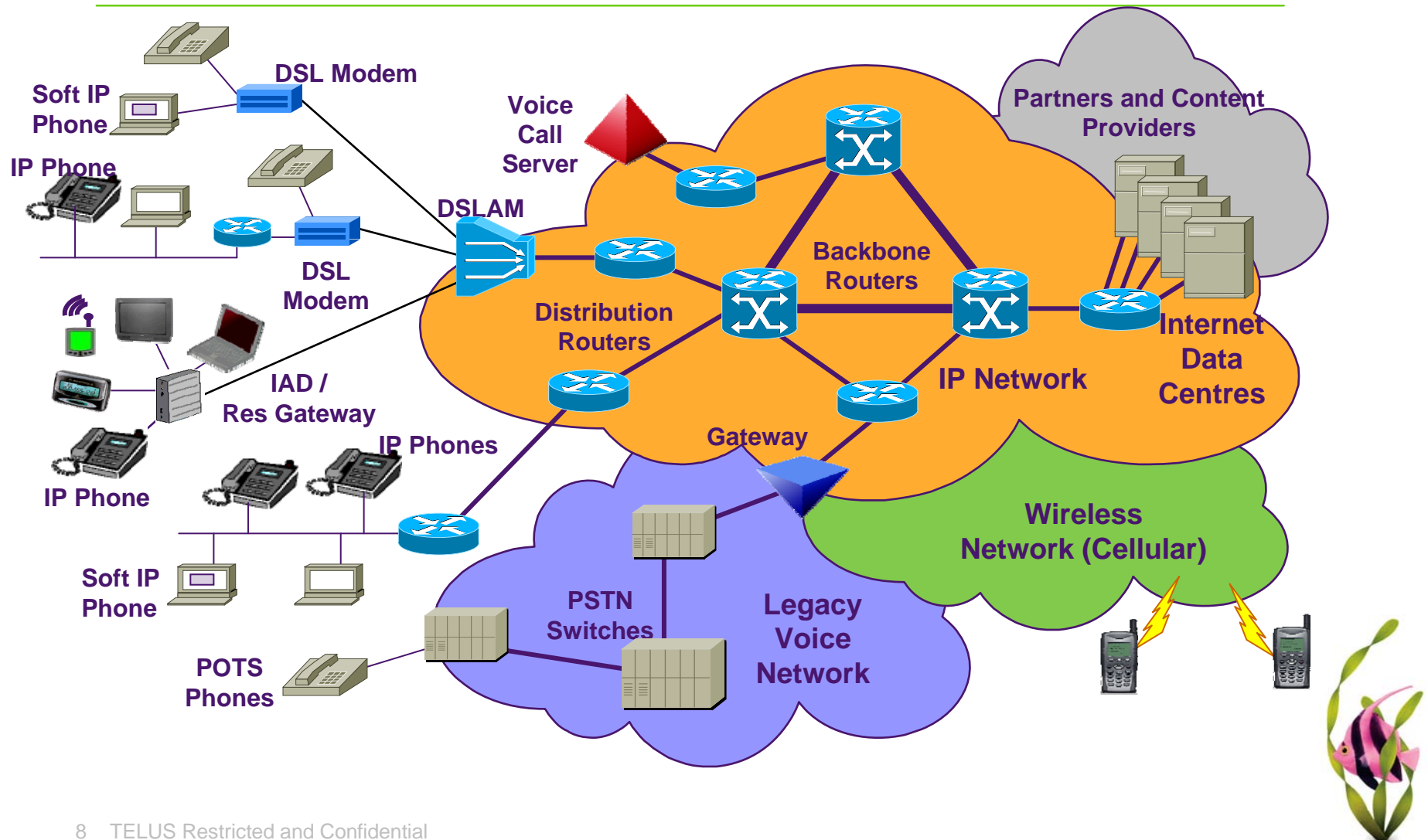
- switching network



- transport network



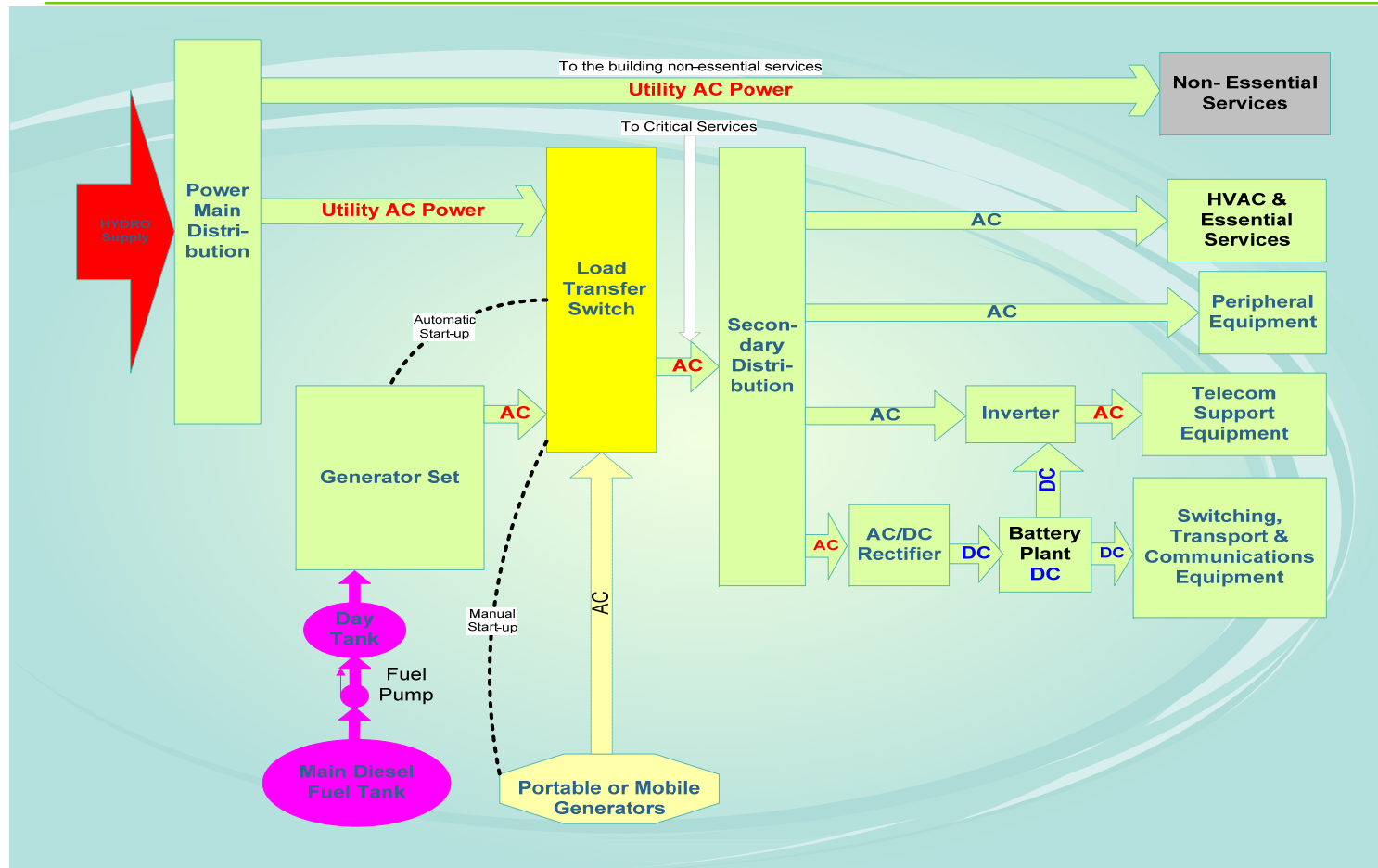
Telecommunications Network





Power Dependency

Power in telecommunications





Impacts of July 14, 2008 Event

Impacts

- Approximately 60 locations (customer and TELUS) impacted in the affected area
- Impacts to wireline, wireless, data, and IP services
- Power (batteries) at customer premises (primarily businesses) causing telecommunications equipment to fail
- Additional resources deployed/engaged (maintenance, assurance, customer contact, event management) to restore services





Lessons Learned

Lessons Learned

■ Opportunities:

- Customer/landlord information issues – information related to building landlord, security access, onsite power capabilities, customer contact (s) to be added to common internal site
- Event management response process review – processes updated and implemented
- Controlled shutdown/power-up processes for certain network elements improved

■ Confirmations:

- Collaboration (internal/external) critical to response and recovery efforts
- Protocols/contacts for sharing information critical to have in advance of an event





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