

# Technology Platforms and Service Economy Transformation

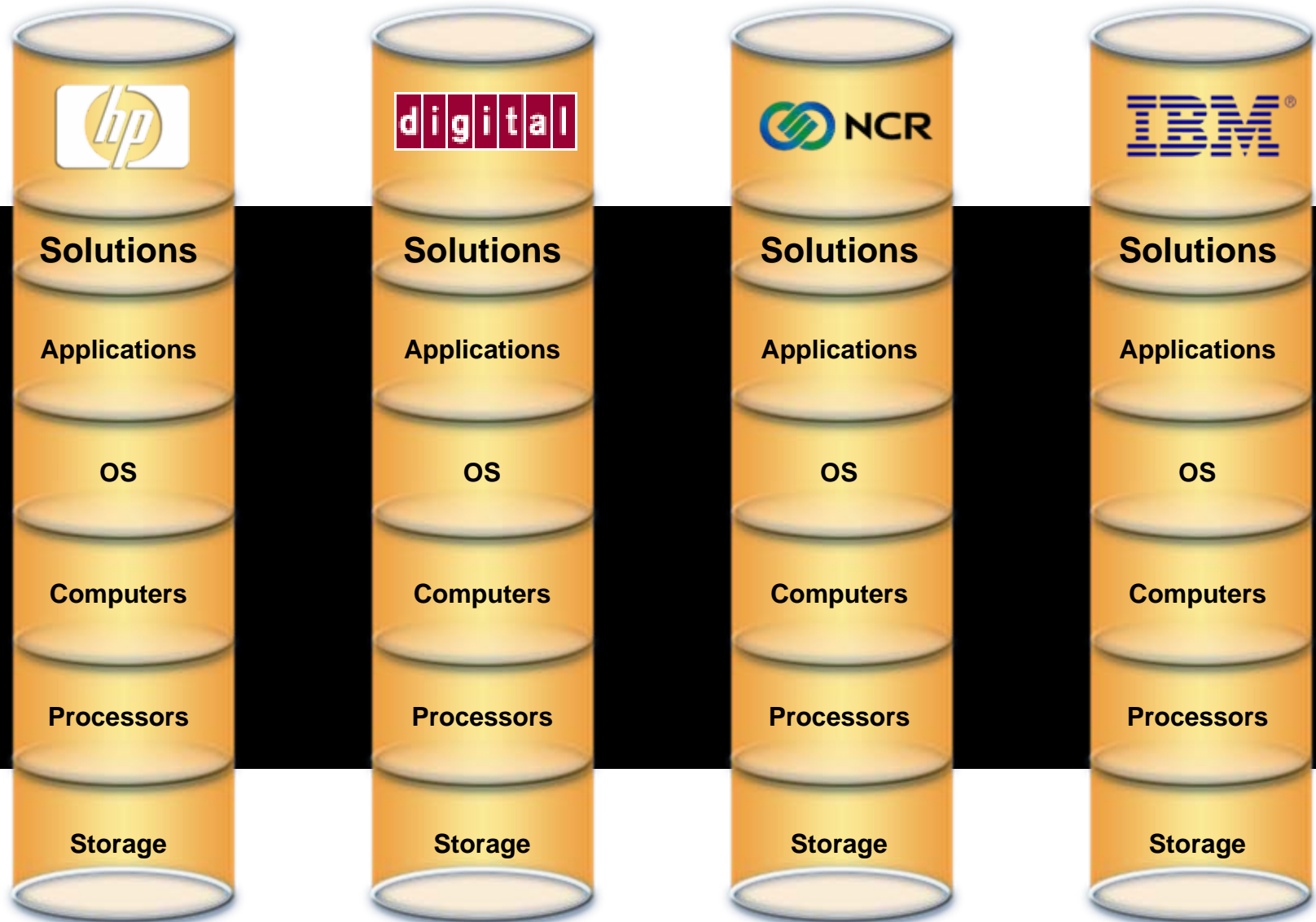
Jonathan Murray

Microsoft

# Agenda

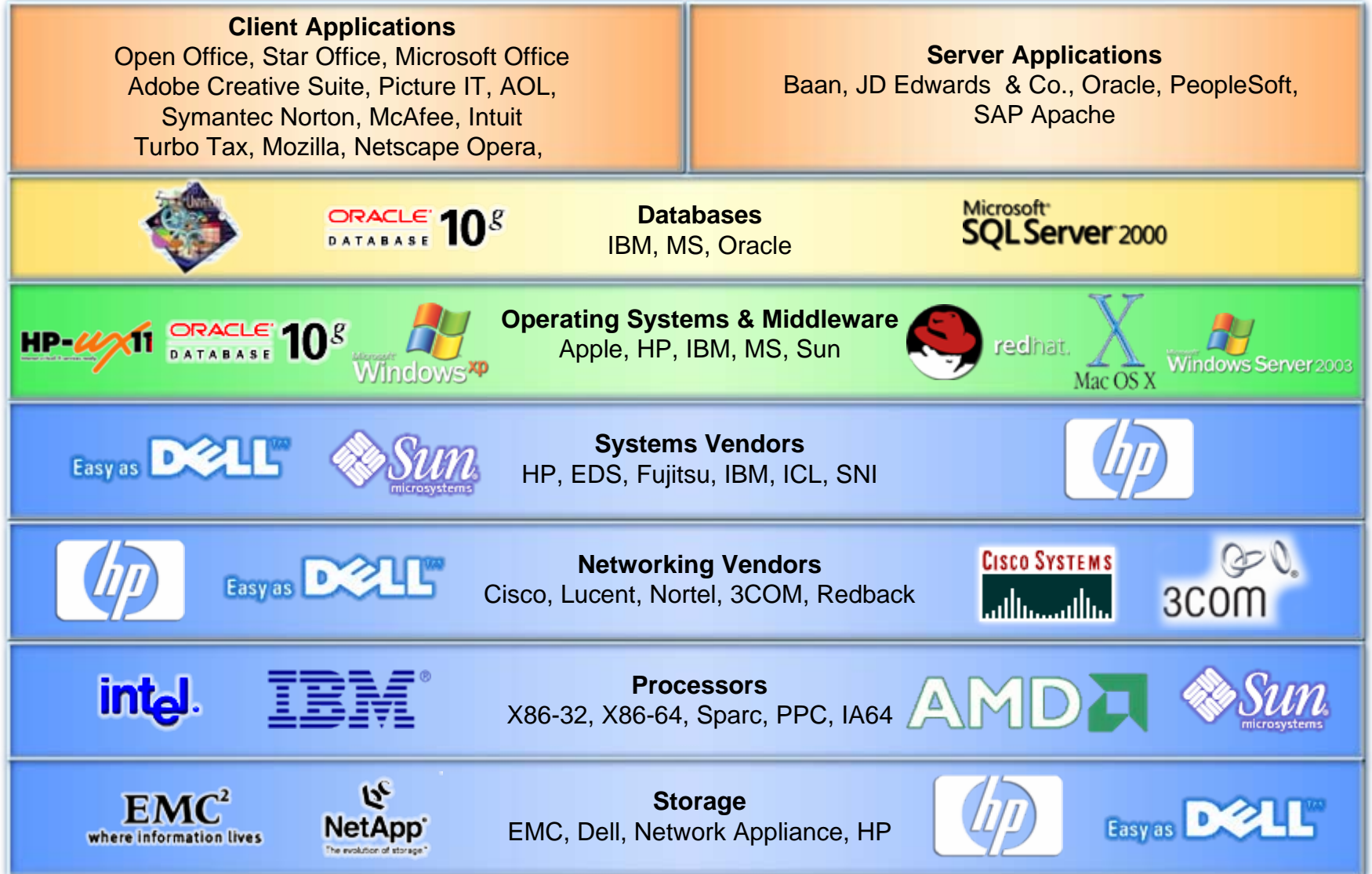
- Historical context
- Defining a “Technology Platform”
- Platform economics
- How platforms enable service transformation
- Future directions

# Pre 90's - Vertical Integration



# Post 90's - Horizontal Integration

## *The Emergence of Platforms*



# What Makes a “Platform”

*Platform = Encoding + Abstraction +  
Connection*

# Encoding = Schema +

**Algorithm**

```
<xsd:element name="letterBody">
  <xsd:complexType mixed="true">
    <xsd:sequence>
      <xsd:element
        name="salutation">
          <xsd:complexType
            mixed="true">
            <xsd:sequence>
              <xsd:element name="name"
                type="xsd:string"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      <xsd:element name="quantity"
        type="xsd:positiveInteger"/>
      <xsd:element
        name="productName"
        type="xsd:string"/>
      <xsd:element name="shipDate"
        type="xsd:date"
        minOccurs="0"/>
      <!-- etc. -->
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

Abbreviated BPEL4WS Document

```
<sequence>
  <receive variable="PO" ...>
  <flow>
    <sequence>
      <invoke operation=
        "initiatePriceCalculation"...>
      <invoke operation=
        "sendShippingPrice"...>
      <receive variable=
        "Invoice"...>
    </sequence>
  <sequence>
    <invoke operation=
      "requestShipping"...>
    <receive variable=
      "shippingSchedule"...>
  </sequence>
  <sequence>
    <invoke operation=
      "requestProductionScheduling"...>
    <invoke operation=
      "sendShippingSchedule"...>
  </sequence>
</flow>
<reply variable="Invoice"...>
</sequence>
```

# Abstraction



HP G1000A Protein Sequencer

# Connection



All screens are simulated.

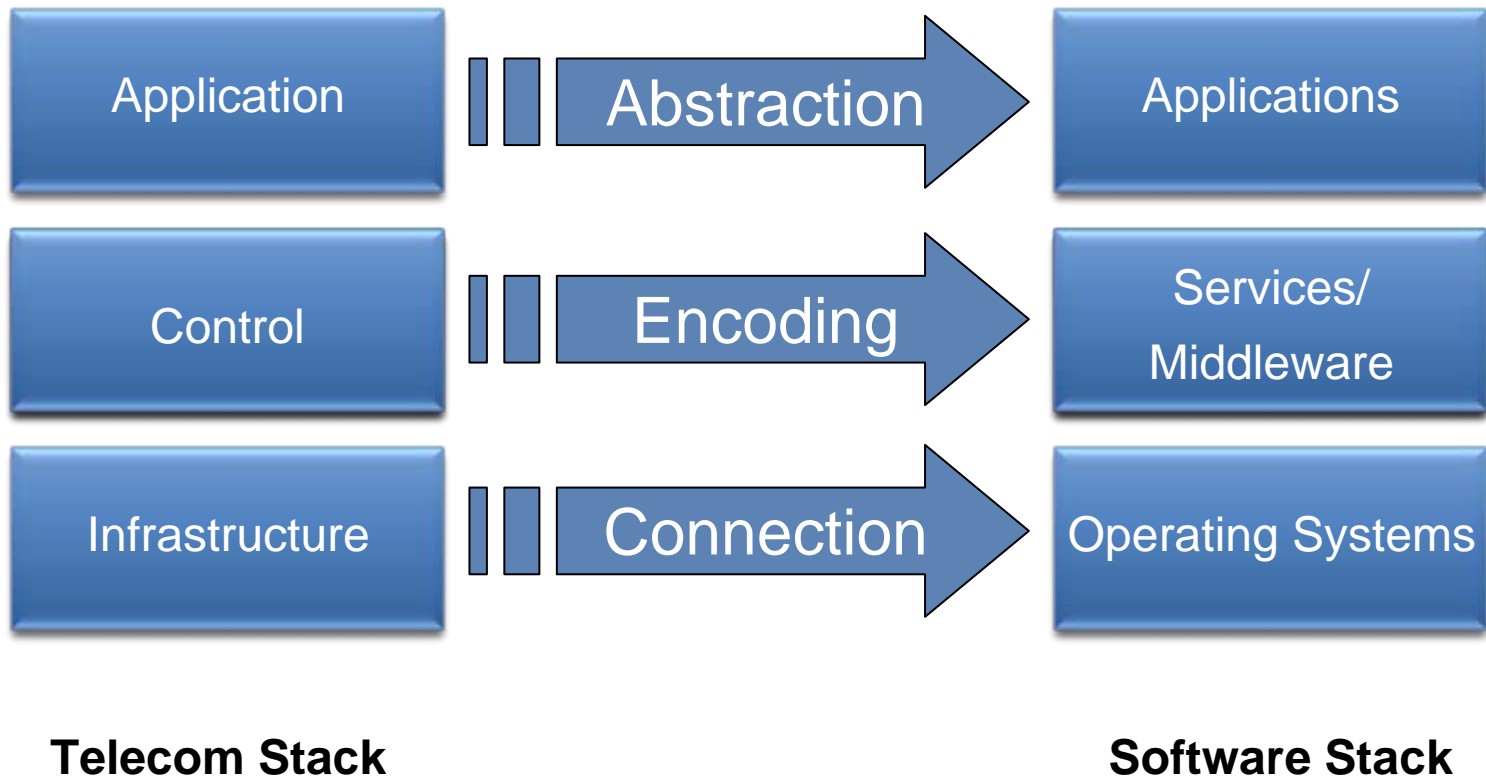
# Standards

- Infrastructure
  - De Jure: TCP/IP, HTTP, HTML, XML, SOAP, WS\* ...
  - De Facto: IOS, ABAP, Java, .Net, PDF, DWG...
- Domain Specific
  - OMF, GeneX, SML, MTML ...
  - <http://xml.coverpages.org/xmlApplications.htm>  
|

# What Drives Platform Utility?

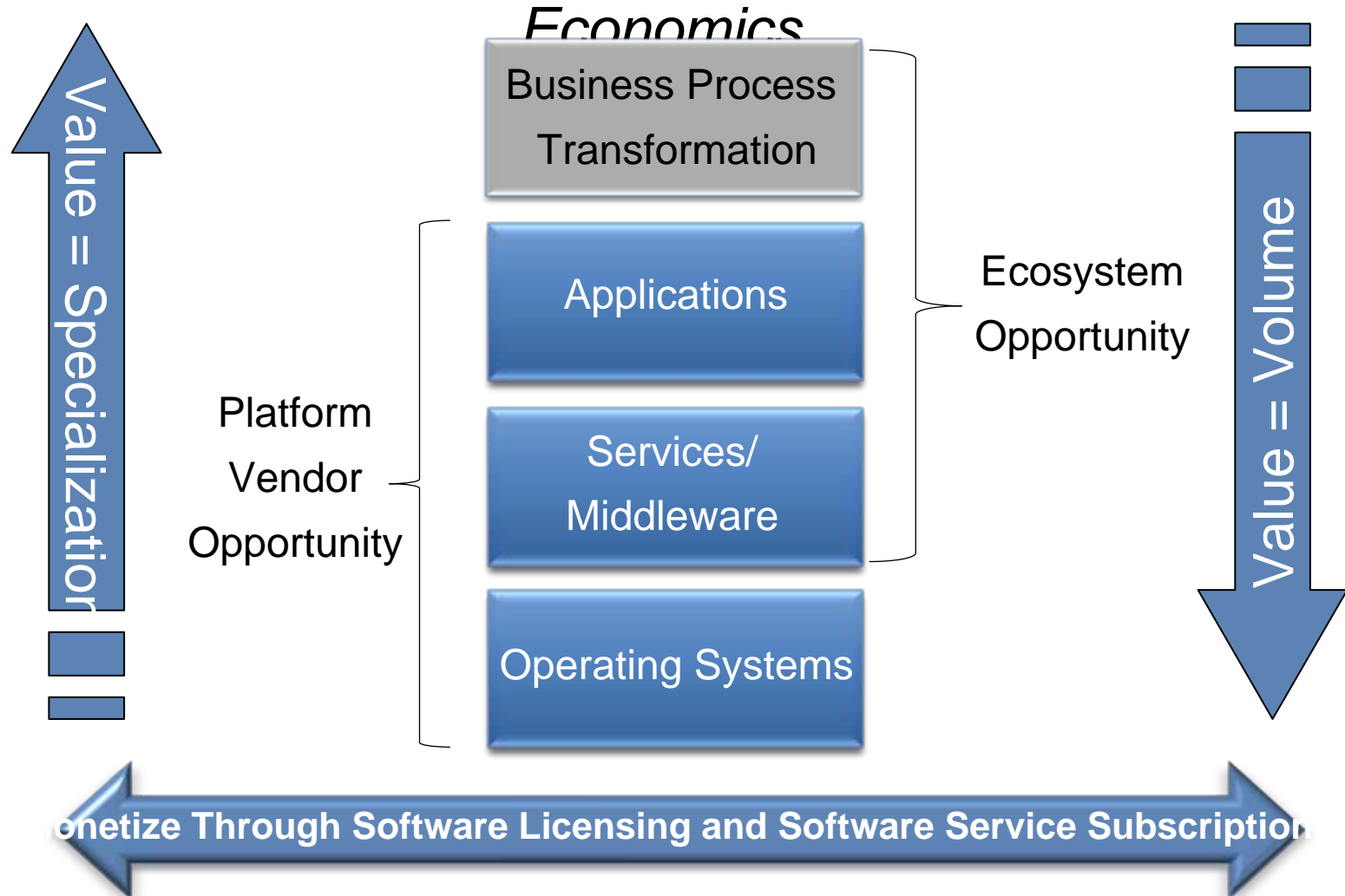
- Standardization and scale economics
- Value of encoded knowledge
- Breadth of connection
- Degree of abstraction

# Platform Transition



# Commercial Platform Business Model

*Value Creation Through Specialization and Scale*



# What's so special about this car?

Any weather. Any corner. Any pace. Any passion.  
The BMW X3 SAV.



## Reference Projects

### Company

#### Range of Services

##### Engineering

Product Development  
Process

Styling

Vehicle Concepts

Complete Vehicle

Body & Trim

Chassis Modules

Drivetrain & All-Wheel Drive  
Systems

Engine Integration

Electrics/Electronics

Prototype & Low-Volume  
Production

##### Reference Projects

Vehicle Assembly

Modules & Components

Space Technology

Services

### Innovation

### Locations

### Press

### Events

### Career



« 3 von 8 »

### Complete vehicle engineering: BMW X3

The BMW Group and MAGNA STEYR have signed a cooperation agreement covering the development and manufacture of the new BMW X3 Sports Activity Vehicle. The detailed vehicle concept worked out by BMW engineers was forwarded to MAGNA STEYR for serial development and production at Graz. Never before has an automobile manufacturer assigned such a large-scale project to a partner in the automotive supply industry.

Apart from the top grades MAGNA STEYR regularly earns in quality rankings (e.g. J.D. Power & Associates), Joachim Milberg, former Chairman of the Board of Management of BMW AG, provides another reason for having awarded this project to MAGNA STEYR: "Our cooperation with MAGNA STEYR increases the speed and flexibility of our company and is a further milestone in the consistent implementation of our product offensive." And he continues that "those who work alone can only accumulate, but those who cooperate intelligently can multiply."

The first X3 left the MAGNA STEYR assembly line on schedule in 2004.

Search



# Automotive Services Transformation *Platform Enablers*

- Move from specialized to general purpose, standards based platforms
- Adoption of Internet Protocol (IP) based networks from shop floor to car
- Which enables:
  - Integration of design and production management systems
  - Encoding, re-use and sharing of design and production knowledge
  - Extension of supply chains networks
  - Provisioning of in-vehicle service opportunities

# Mining:

## *A Services Business Model?*

- CODELCO
  - Chilean state owned copper producer
  - Largest copper producer in the world
  - Produces 2.2 M Tons per year
  - Owns 20% of world reserves
- Strategic Challenges
  - Labour cost and flexibility
  - Capital intensity of new mine development
  - Political challenges of acquiring foreign reserves









# Mining Services Transformation

## *Platform Enablers*

- Move from specialized to general purpose, standards based platforms
- Low latency, resilient, fibre optic IP networks
- Vision enabled robotics
- Rugged sensor networks

# A View of The Future

- Future platform utility is driven by three fundamental laws:
  - Moore's – Exponential growth in computation
  - Shugart's – Exponential growth in storage
  - Metcalf's – Exponential growth in bandwidth
- Implications
  - Ability to encode ever higher levels of abstract knowledge
  - Ubiquitous and seamless connectivity
  - Autonomous ad-hoc service configuration
  - Greater levels of abstracted interaction:  
Predictive/Adaptive