

# Introducing Darwin

John Hawkins

Martin Green

# Supporting Individuals

|                    |                       |
|--------------------|-----------------------|
| Martin Green       | Cisco Systems         |
| Armin Schulz       | AMCC                  |
| John Hawkins       | Nortel Networks       |
| Raj Sharma         | Luminous              |
| Brian Holden       | PMC-Sierra            |
| Bob Sultan         | DataNet Associates    |
| Vassan Karighattam | Intel                 |
| Spencer Dawkins    | Fujitsu Network Co    |
| Chuck Lee          | Appian Communications |
| Joshua Etkin       | Mindspeed             |
| Ashwin Moranganti  | Appian Communications |
| Jason Fan          | Luminous              |
| Stuart Robinson    | PMC-Sierra            |

# Supporting Individuals

|                 |                       |
|-----------------|-----------------------|
| Gunes Aybay     | Riverstone Networks   |
| Yongbum Kim     | Broadcom              |
| Amit Banerjee   | AMCC                  |
| Sateesh Kumar   | Redwave Networks      |
| Mark Bordogna   | Agere Systems         |
| Heng Liao       | PMC-Sierra            |
| David Cheon     | Sun Microsystems      |
| Dave Meyer      | Mindspeed             |
| Preminder Cohan | Infineon Technologies |
| Gal Mor         | Corrigent Systems     |
| Jie Pan         | Worldcom              |
| Henrik Uhlemann | Vitesse               |

# Motivation

## **A belief in standards-based solutions**

- Cost savings at the component level
- Plug-and-play operation eliminates complexity and cost for end-users
- Well-understood installation, operation and maintenance procedures
- Stated simply: end-users demand it

## **Time is of the essence**

- There are other solutions to the problems we are trying to solve
- The market won't wait for us

# Motivation

## **A commitment to RPR products**

- At least 5 pre-standard products in the market
- Customers like it and want more of it
- It is the right technology enabling high-value, QoS-enabled services (VPN, TDM, TLS, IP)

## **Good commonality between proposals**

- PHY, Protection, Fairness

# Road to Darwin

## Challenges

- 1st Draft due-Jan2002
- At least 5 proprietary RPR implementations on the market or in development
- Multiple services over one layer w/ QOS
  - VPN, TDM, TLS, IP
- Multiple implementation choices
  - PHY, Protection, Fairness

# Road to Darwin

## **Common goals**

- Dynamically shared bandwidth
- Controlled latency/jitter
- Support for multiple classes of service
- Carrier class ring protection and resiliency
- Leverage existing physical layers
- Optimized and cost efficient for data

# Why Darwin

- Draws from Alladin, Gandalf and DVJ
  - All solved the same problems via different methods/implementations
- Darwin allows one protocol to solve multiple market requirements
- Vendors can optimize implementation to meet their customer requirements
- All Darwin systems will interoperate regardless of implementation



# Why Darwin

- Physical Layer Agnostic
  - Supports SONET(POS/GFP), Ethernet PHYs
- Protection
  - Supports Steering and Wrapping
- QOS
  - Supports 3 classes into the MAC, 2 on ring
- Fairness
  - Single tunable algorithm capable of both congestion avoidance and management

# Darwin Agenda

|                    |               |
|--------------------|---------------|
| MAC Architecture   | David Meyer   |
| Frame Format       | Steve Wood    |
| Fairness Algorithm | Harry Peng    |
| Physical Layer     | Steve Wood    |
| Topology Discovery | Jim Kao       |
| Protection         | Gal Mor       |
| OAM                | Leon Bruckman |

-Darwin\_v1\_0.pdf-