

**A Report to IEEE P1394b,
re: 1394 Power
Presentation to
UL1950 & IEC 950**

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1394a Power Distribution

- ◆ **Basic 1394a power requirements**
 - ◆ **1.5 A max consumer (bus-powered node)**
 - ◆ **8 V to 33 Volt Launch Voltages**
 - **20 V to 33 V (Power Provider)**
 - **8 V to < 20 V (Alternate Provider)**
 - ◆ **Power providers required to provide current limit device**
 - **Current Limit value passes operational current while complying with applicable safety requirements**
 - ◆ **“Summing” ports required to provide per port current limit devices**

1394a Current Limit

- ◆ **Power Providers & “*Summing*” Ports are *REQUIRED* to provide current limit!**
 - **Compliant with applicable regulatory requirements**
 - **tolerant of short-duration in-rush current**
 - **“*Summing*” Ports shall provide per port current limit**
- ◆ **Preset “*trigger*” cannot exceed 3.0 A**

1394a Current Limiters

CL Device behavior

In-rush current at connect and configuration is expected and legal

Safety issues

Conform to applicable regulations

Current limiters are NOT current consumption 'cops'!

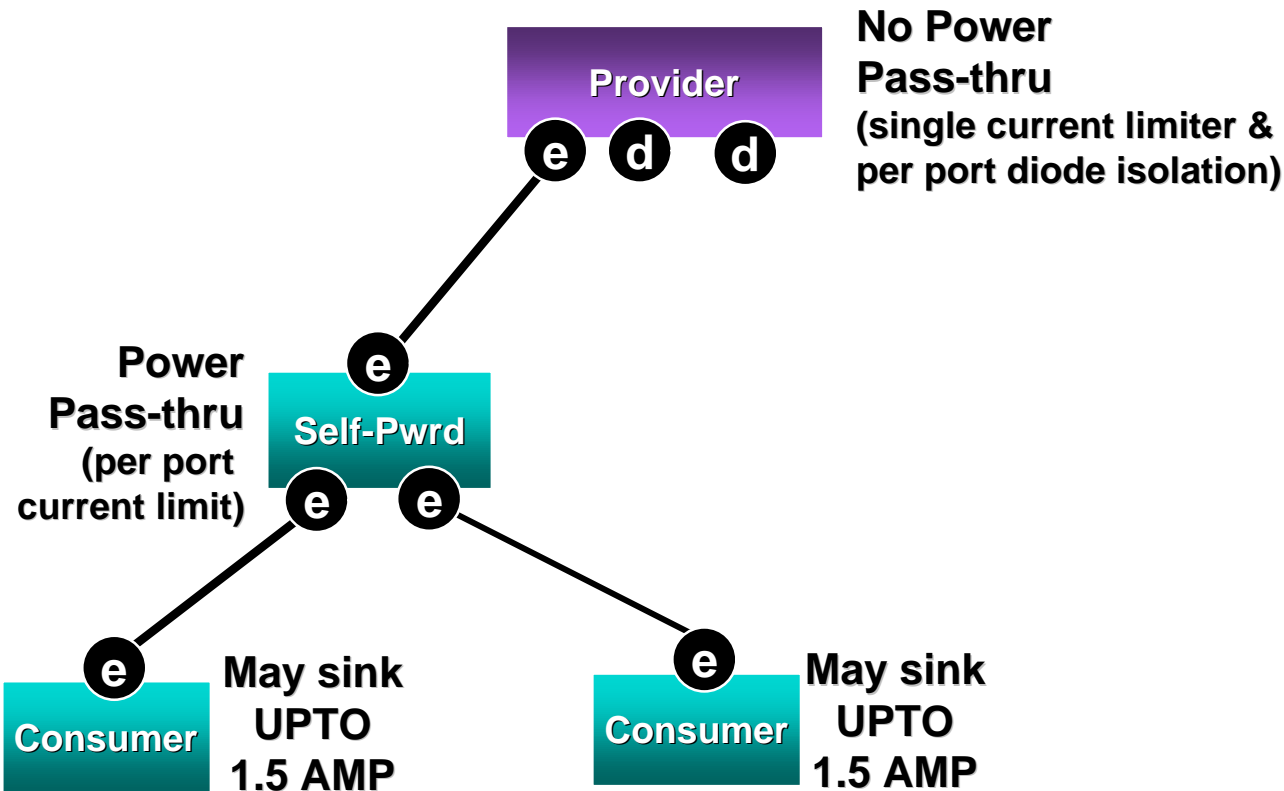
Current limiters are for regulatory safety requirements - ONLY!



1394a Node *Types*

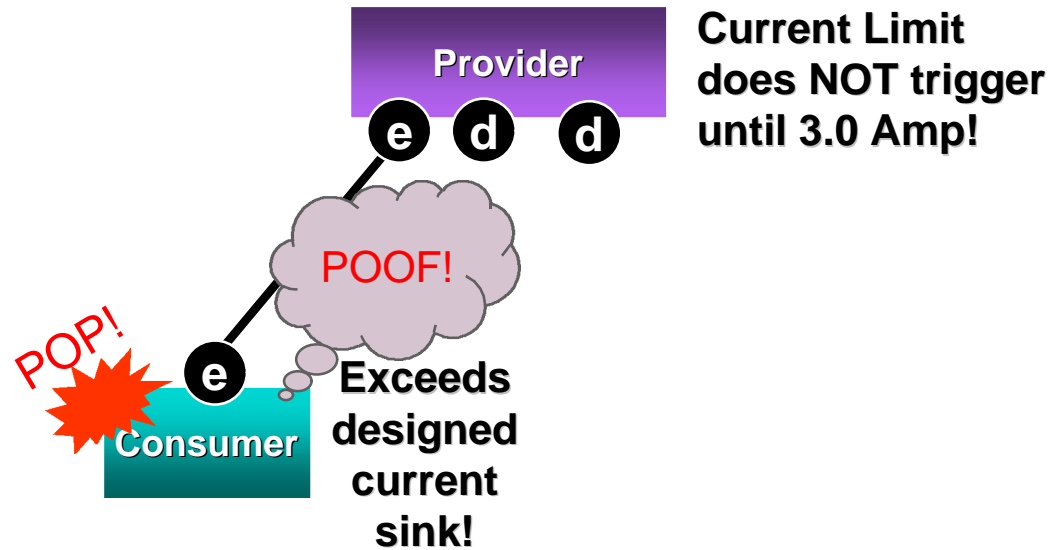
- ◆ **Power Provider (supplies cable power)**
 - **Power Provider**
 - **Alternate Provider**
- ◆ **Power Consumer (single port *ONLY!*)**
- ◆ **Self-Powered**
 - ***“Pass”* power through if multi-port**

1394 Power Configuration



e - enabled port **d** - disconnected port

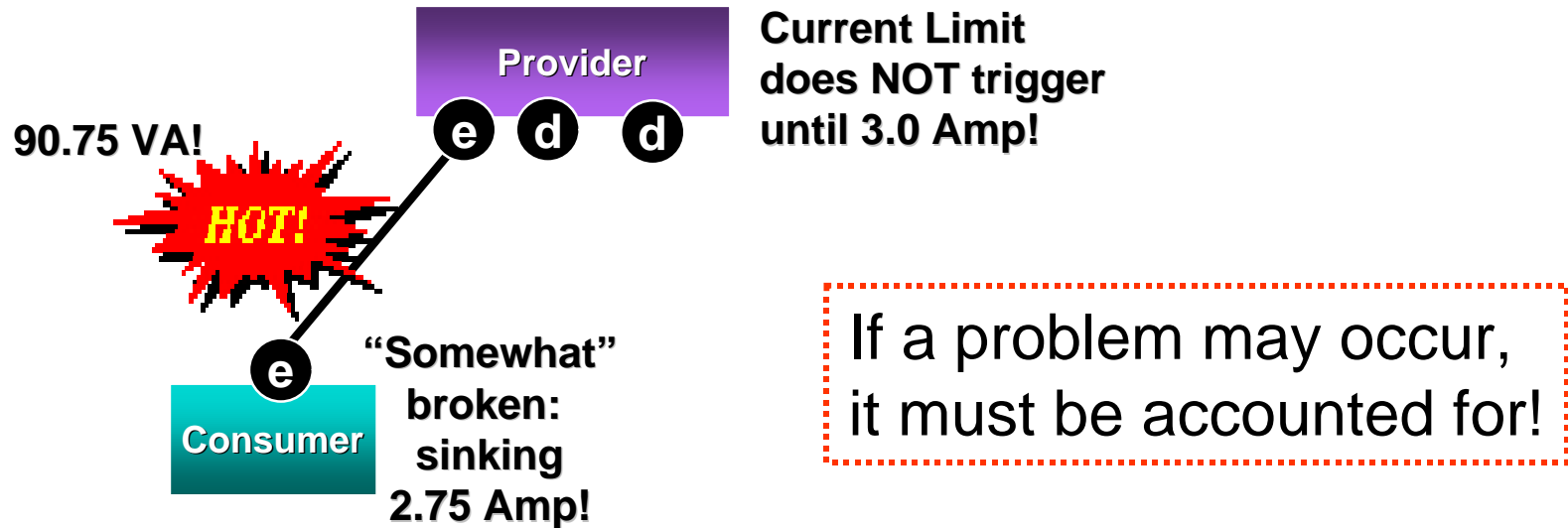
1394 Power Problem!



What if the consumer has a *“problem”* and begins to sink more (like, perhaps, 2.75 Amps)?

e - enabled port **d** - disconnected port

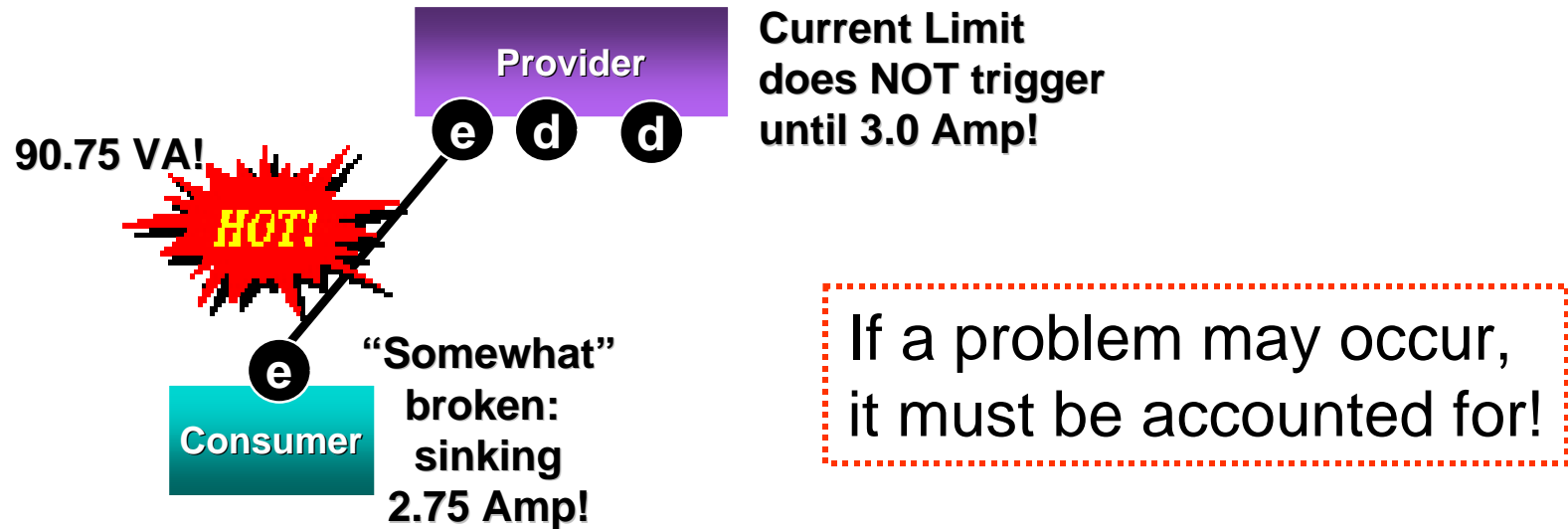
1394 Power; What UL Sees:



Current Limit Trip is 3.0 Amp for 100Va. Consumer may break and consume something less than 3 Amp but sufficient to exceed 90Va - requiring “self-extinguishing enclosures as opposed to “slow-burning” enclosures AND Consumer requires a 1.5 amp “fuse”!

e - enabled port **d** - disconnected port

1394 Power; What UL Sees:



Though not in all standards today, regulatory agencies are currently discussing 15VA, 50VA, and 90VA changes for determining when “self-extinguishing” enclosures are required. Scandinavian countries DO include a 50VA requirement in their specifications TODAY!

e - enabled port **d** - disconnected port