 RPR ups efficiency of metro Ethernet(!) Companies traditionally have gained basic resiliency for their metropolitan Ethernet networks through a Layer 2 mechanism such as Spanning Tree or Layer 3 routing protocols. But these mechanisms, with their few-second network restoration times, are inadequate for delay- and jitter-sensitive data applications that are proliferating rapidly on enterprise networks. To gain greater resiliency, corporations have had to install fixed-bandwidth point-to-point circuits, or fiber pairs, between campus nodes along with back-up paths for protection - a costly endeavor. What companies need is a metropolitan Ethernet architecture with the resiliency of SONET but with significant network efficiencies for packet-based services. Resilient Packet Ring (RPR) is an emerging Layer 2 media access control (MAC) technology that meets those needs. The IEEE created a draft specification for RPR and is expected to ratify the standard this year. RPR uses Ethernet switching and a dual counter-rotating ring topology to provide SONET-like network resiliency and optimized bandwidth usage, while delivering multipoint Ethernet/IP services. RPR maintains its own protection scheme and uses physical-layer alarm information and Layer 2 protocol communications to detect node and/or link failures. When a failure is detected, the RPR switching mechanism restores networks in less than 50 millisec. Because RPR is a Layer 2 MAC-based

technology, it can operate over multiple physical layers, including SONET. Therefore, corporations can reap the benefits of RPR by having it ride over the SONET network to deliver the resilient, efficient, multipoint functionality and scalability of data applications such as VoIP, packet video, business continuance and distance learning. Or they can install multiservice provisioning platforms, which are optimized for TDM services but also can support advanced data applications via RPR over SONET. The advantage is that existing TDM services are maintained, while a smooth migration to packet-based services is enabled. (To Be Contiued) 弹性分组环（RPR）技术提升城域以太网的效率(1) 传统上，各个公司是通过第二层机制（如生成树）或第三层路由协议，获得城域以太网的基本弹性。但这些机制具有几秒钟的网络复原时间，对延迟和抖动敏感的数据应用是不适合的，而这样的应用却在企业网上迅速增多。为了获得更大的弹性，各公司不得不在有保护用备份通道的园区节点之间安装固定带宽的点对点电路，即光纤对，而这是很费钱的事。 公司所需要的是城域以太网的架构加上 SONET的弹性，但要具有适合基于分组服务的网络高效率。RPR是新兴的第二层媒体访问控制（MAC）技术，能满足这些要求。IEEE为RPR制定了一个规范草案，可望今年内获得批准成为标准。 RPR利用以太网的交换和双逆向旋转环的拓扑结构，提供像SONET那样的网络弹性和优化的带宽应用，同时提供多点的以太网/IP服务。RPR保留了它自己的保护方案，并使用物理层的报警信息和第二层协议通信来检测节点和（或）链路的故障。当检测到故障时，RPR交换的机制能在不足50毫秒的时间内恢复网

络。 由于 RPR是第二层基于MAC的技术，所以它能在多个物理层上工作，包括SONET。因此，企业能通过运行在SONET网上提供弹性、高效、多点的功能性和数据应用（如VoIP、分组视频、业务连续和远程学习等）的可扩性，从而获得RPR的好处。 或者他们可以安装多服务提供平台，这些平台为提供时分复用（ TDM ）服务进行了优化，同时也能通过 SONET 上的 RPR 支持高级的数据应用。其优点是在实现向基于分组服务平稳过渡的同时保留了已有的 TDM 服务。