



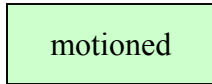
Architectural Analysis

Harry Peng

Agenda

- **Summary of current passed motions**
- **Architectural Charts**
- **Sections of Standard**

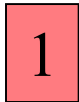
Legend



Addressed by Passed motion



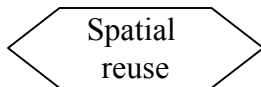
Gap



Local Passed motion reference number



Off page connector



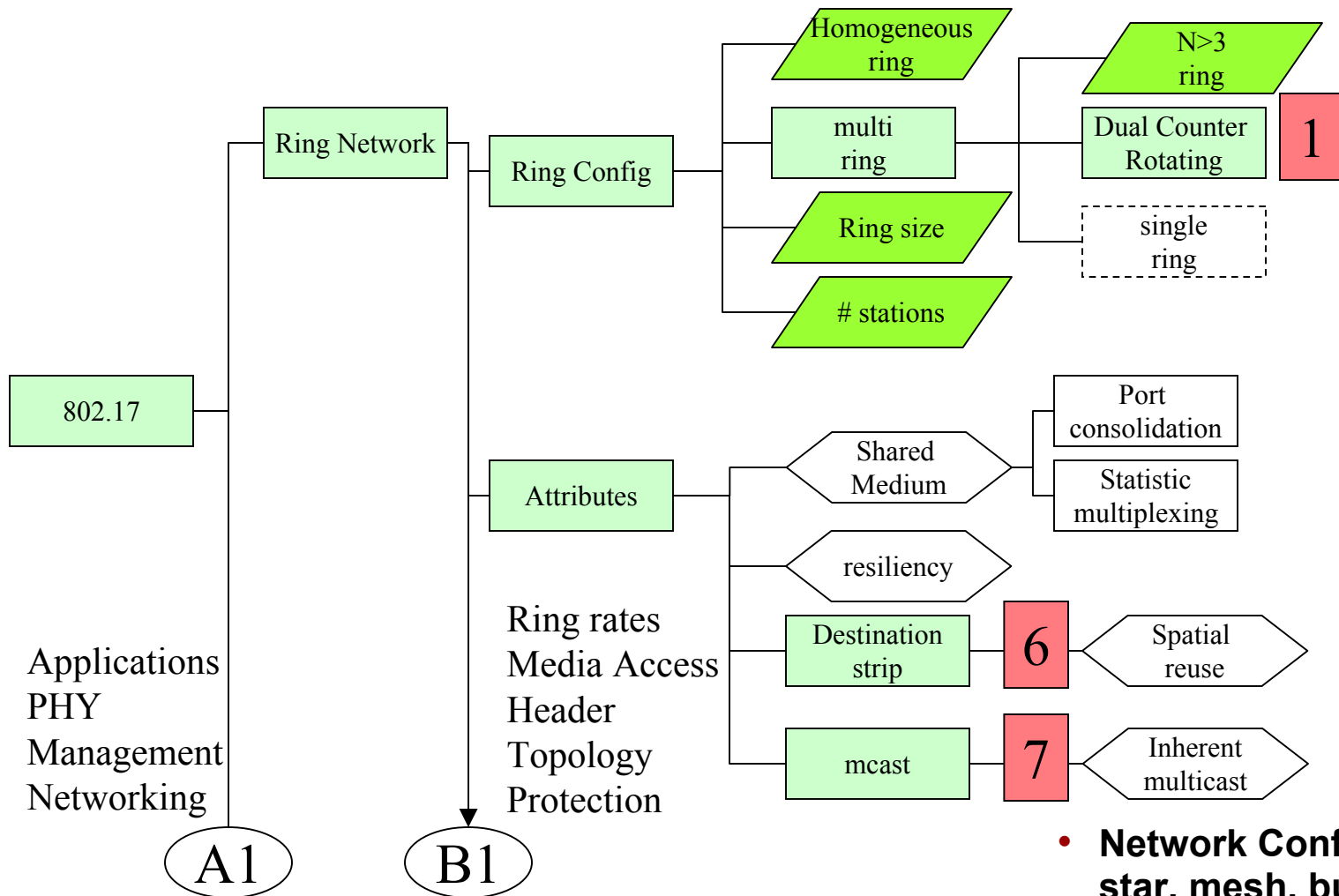
attributes

Current Objective List

Adopted objectives for 802.17 as of May 21, 2001 (in no particular order):

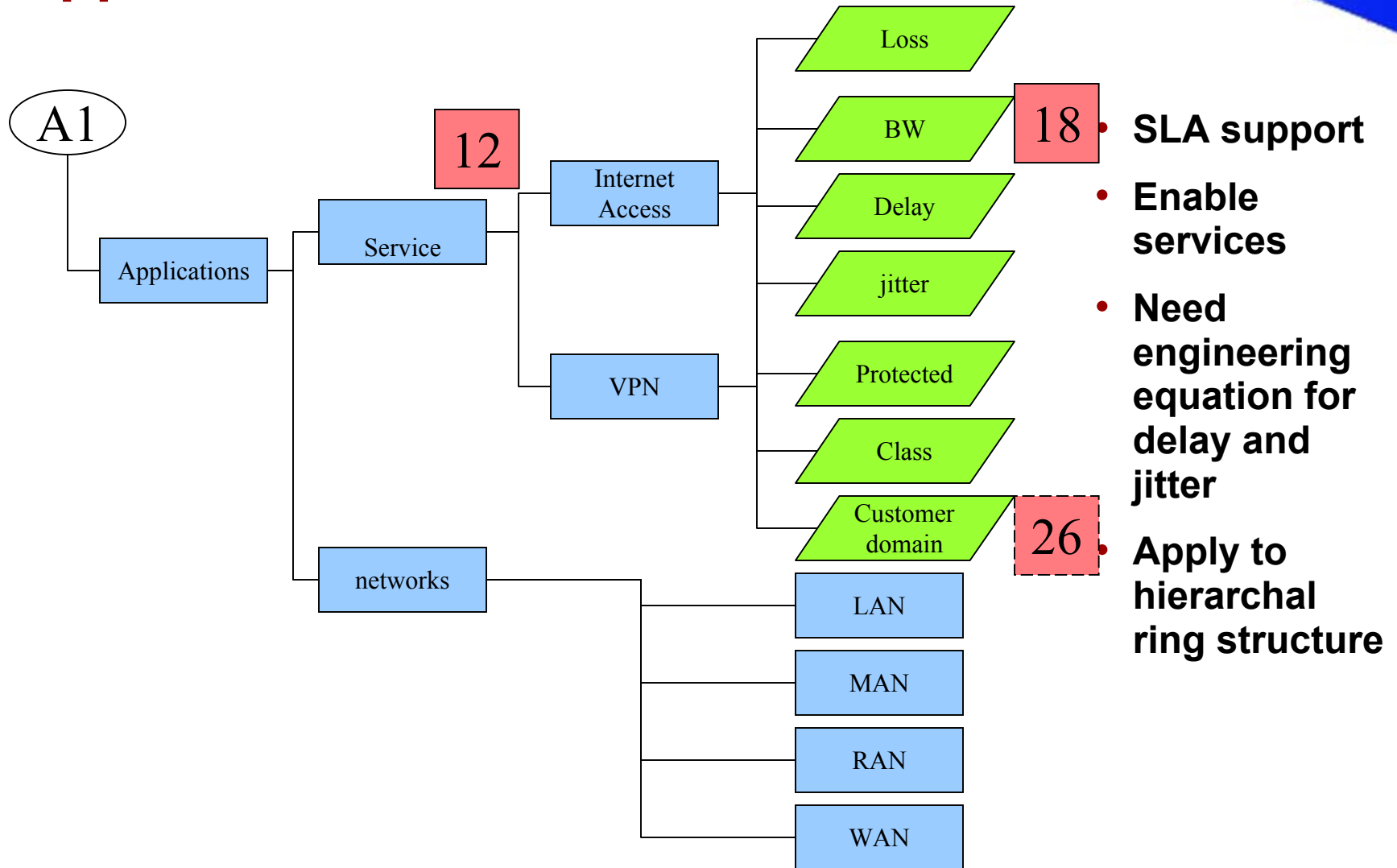
1. Initially the 802.17 RPR Standard shall support a Dual Counter Rotating Ring network topology
2. The 802.17 MAC shall be PHY agnostic
3. The 802.17 RPR Standard shall be capable of supporting speeds of 10Gb/s and above. To support higher speeds some parameters of the standard may be modified
4. Requirement: The MAC must be capable of supporting speeds of 1Gb/s and above
5. The 802.17 standard shall allow support of speeds ranging from 155Mb/s to above 10Gb/s
6. Requirement: The MAC shall support destination removal for uni-cast packets during normal operation.
7. Requirement: The MAC shall support multi-cast
8. Requirement: There shall be a mechanism to ensure packets do not circulate forever
9. The 802.17 standard shall allow a new station to transit and optionally insert packets without manual intervention (plug and play)
10. The MAC shall allow for 802.17 inter-operability to the level of allowing boxes from different vendors on the same ring
11. The 802.17 RPR Standard shall support a fully distributed access method without a master node within the same ring.
12. Require: The MAC shall support multiple types of service
13. The 802.17 MAC shall be payload agnostic
14. RPR Protection switching shall be complete in less than 50ms for a single failure.
15. The RPR MAC shall support SONET / SDH physical layers
16. The MAC shall support a set of operations that enable identification, collection and management of objects related to operation and performance
17. The 802.17 RPR standard shall support a mechanism that allows for topology discovery
18. The 802.17 standard shall provide support for services that require bounded delay and jitter, and guaranteed bandwidth
19. The RPR MAC shall preserve the Service Data Unit
20. The 802.17 RPR Standard shall support and comply with Gigabit Ethernet SAP (Service Access Point)
21. The 802.17 RPR Standard shall support and comply with 10Gigabit Ethernet SAP (Service Access Point)
22. The 802.17 working group shall define a MAC header and frame format
23. The 802.17 RPR Standard should support Operation Administration, Maintenance and Provisioning
24. The 802.17 RPR Standard shall define the managed objects in ASN.1 format.
25. The 802.17 standard shall support dynamic, weighted bandwidth distribution
26. enhanced virtualization mechanism...

Ring Network -1

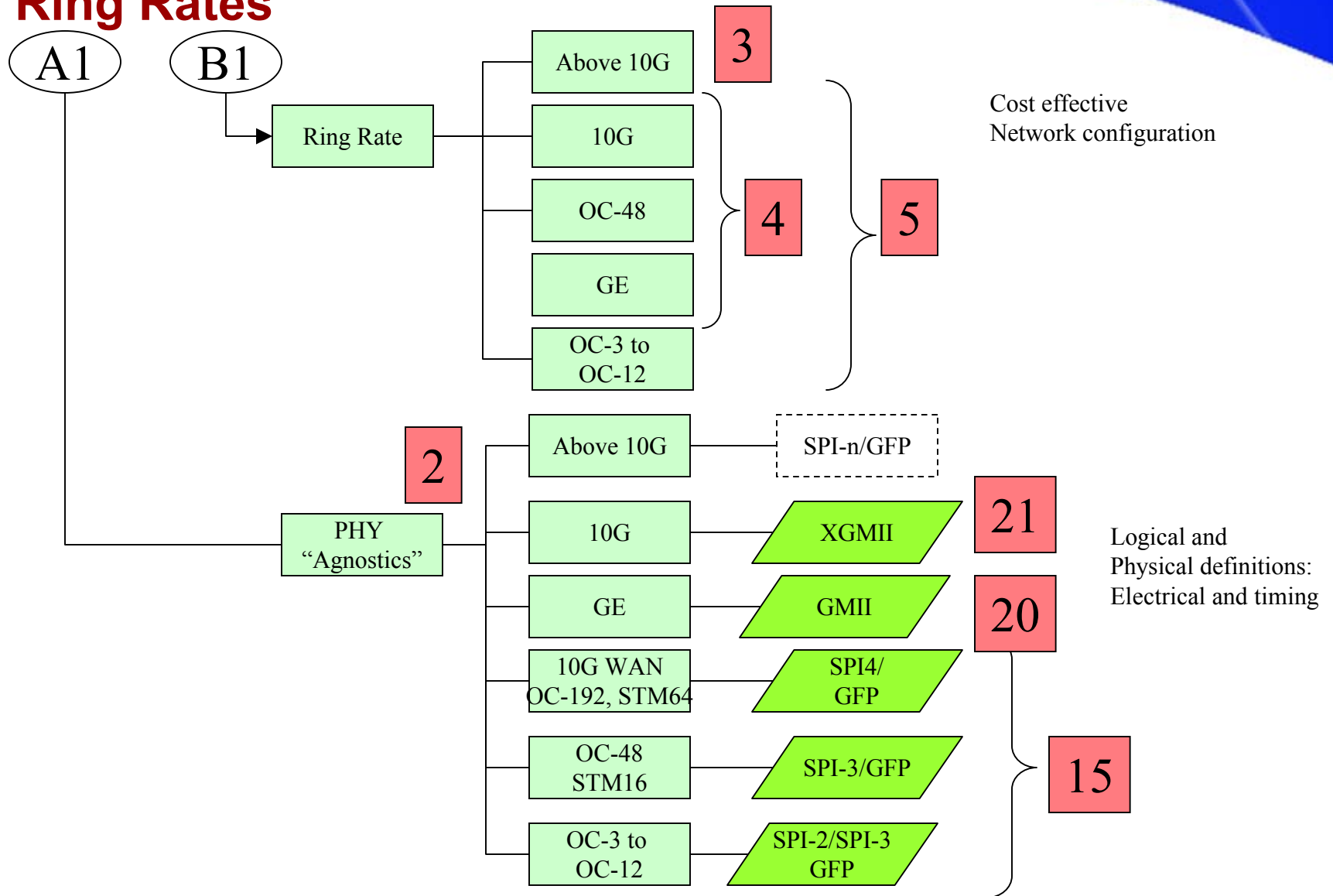


- Network Configuration: No star, mesh, bus.

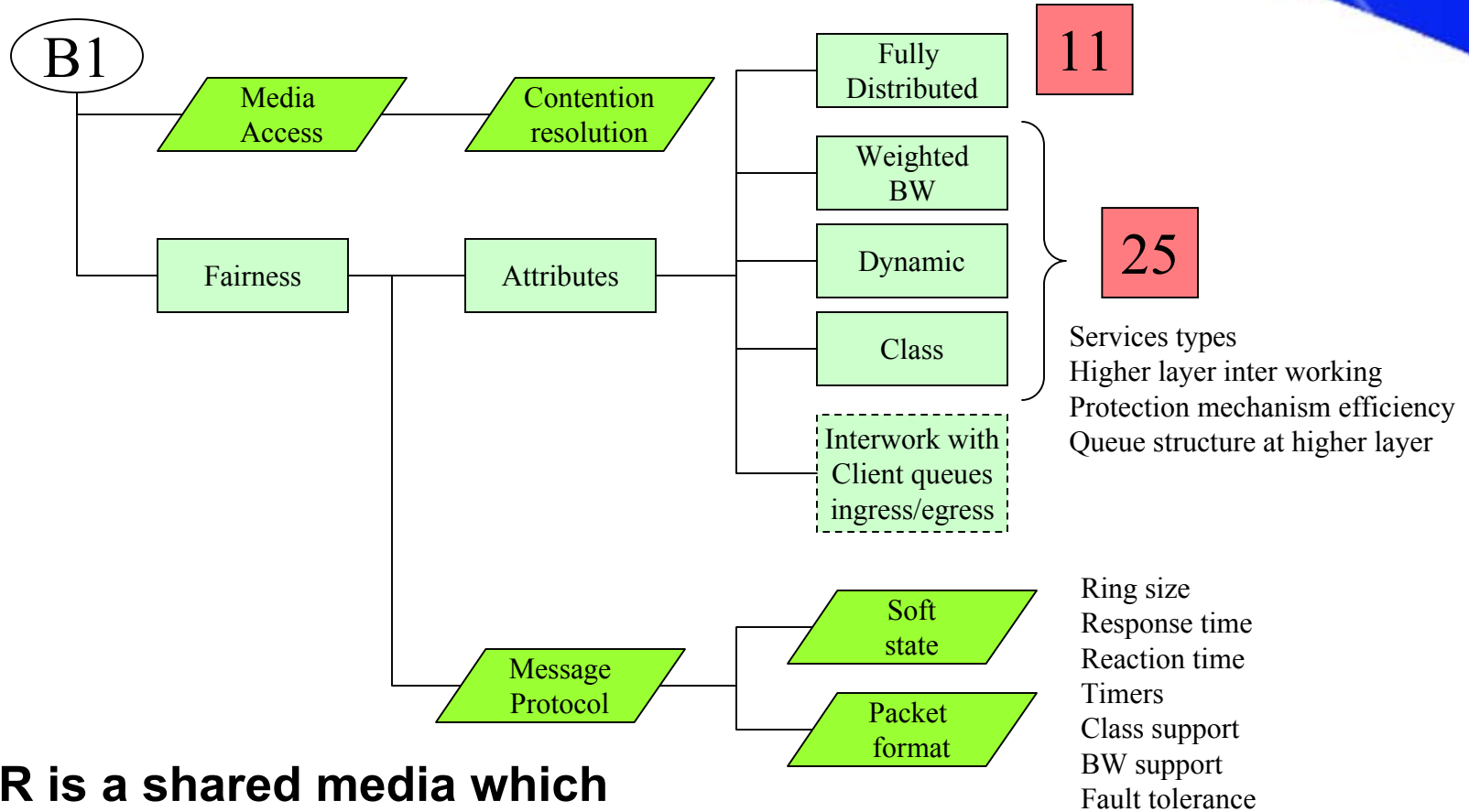
Applications



Ring Rates

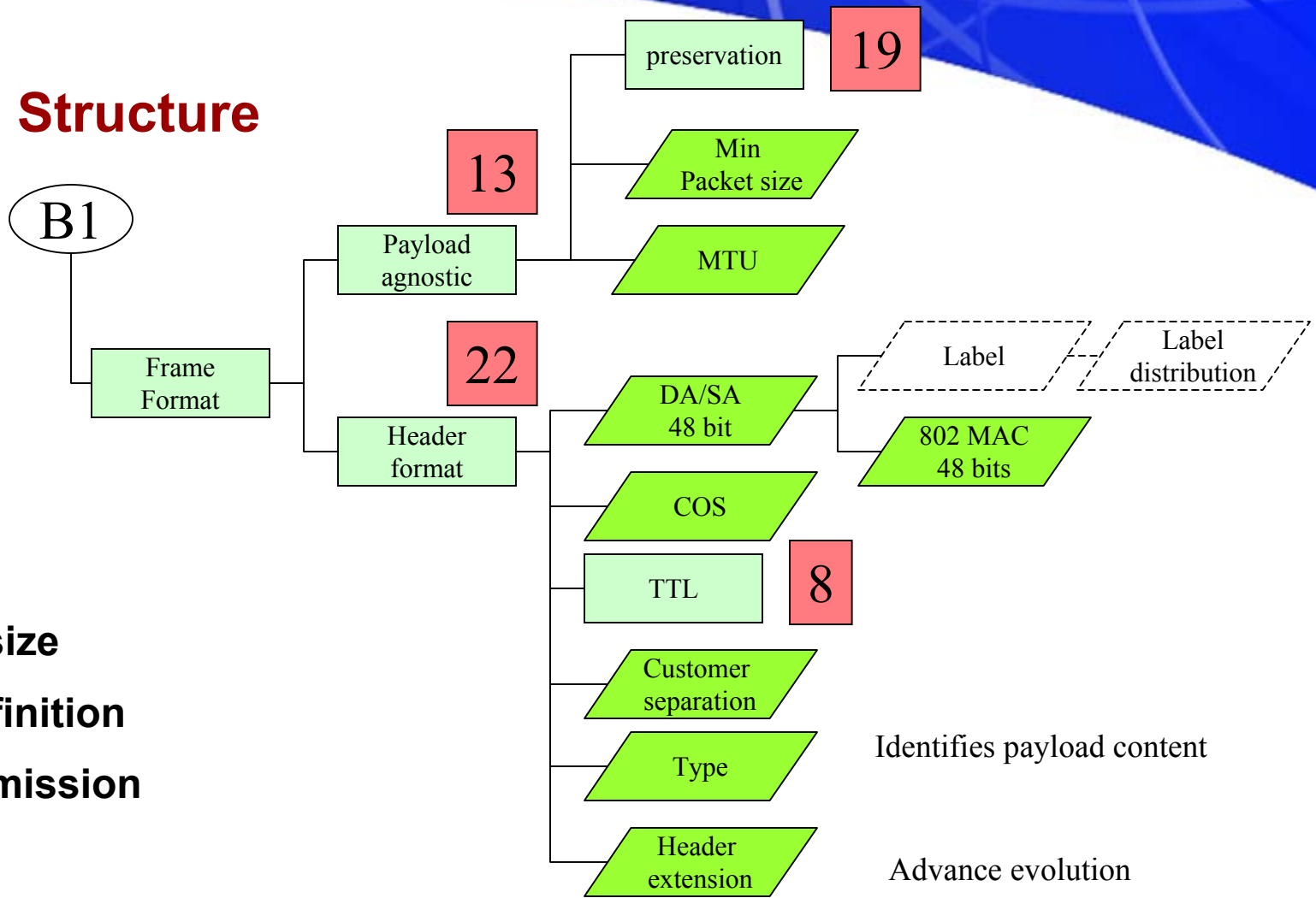


Media Access



- **RPR is a shared media which requires a fair media access control protocol**

Frame Structure

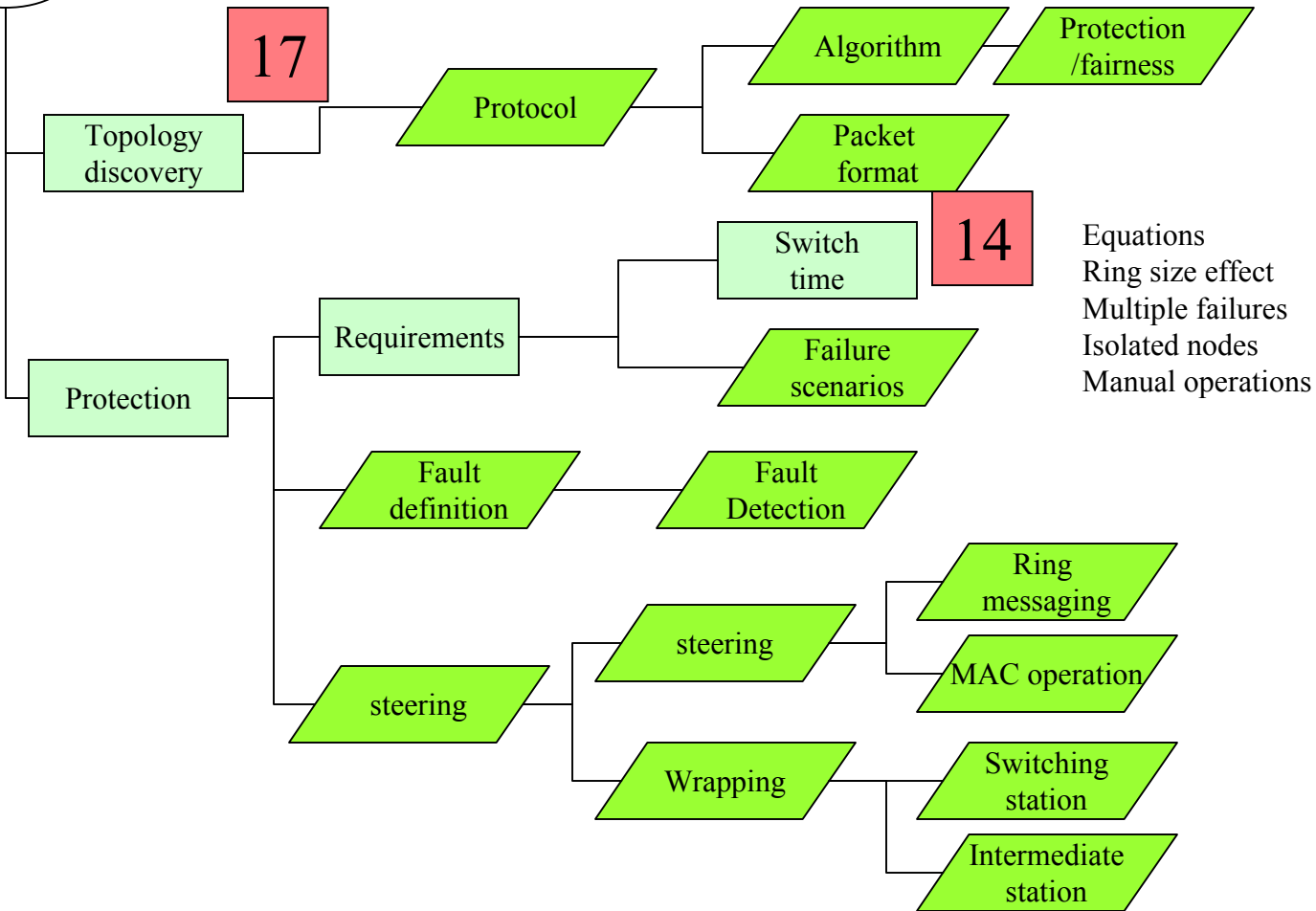


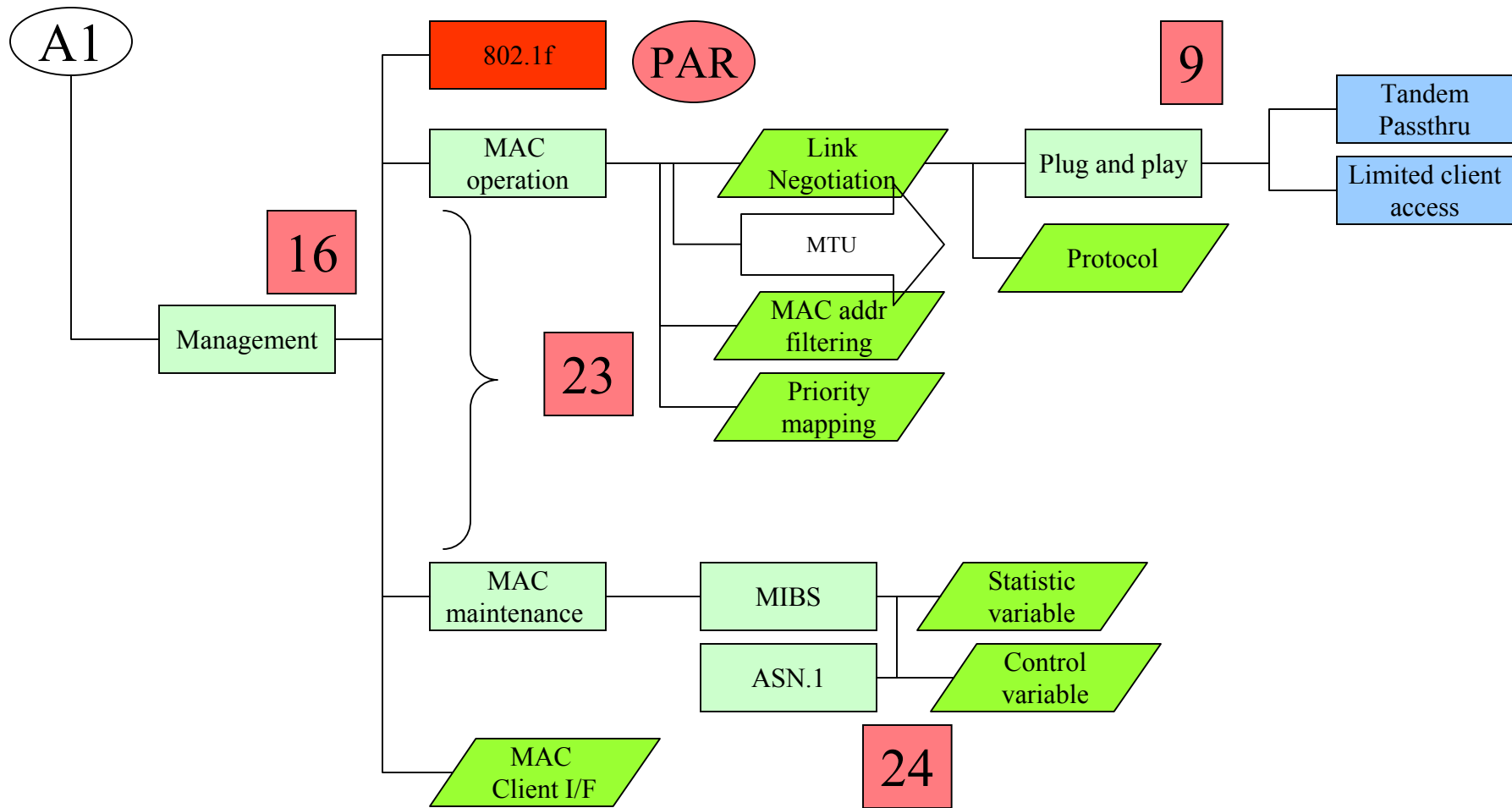
- **Field size**
- **Bit definition**
- **Transmission order**

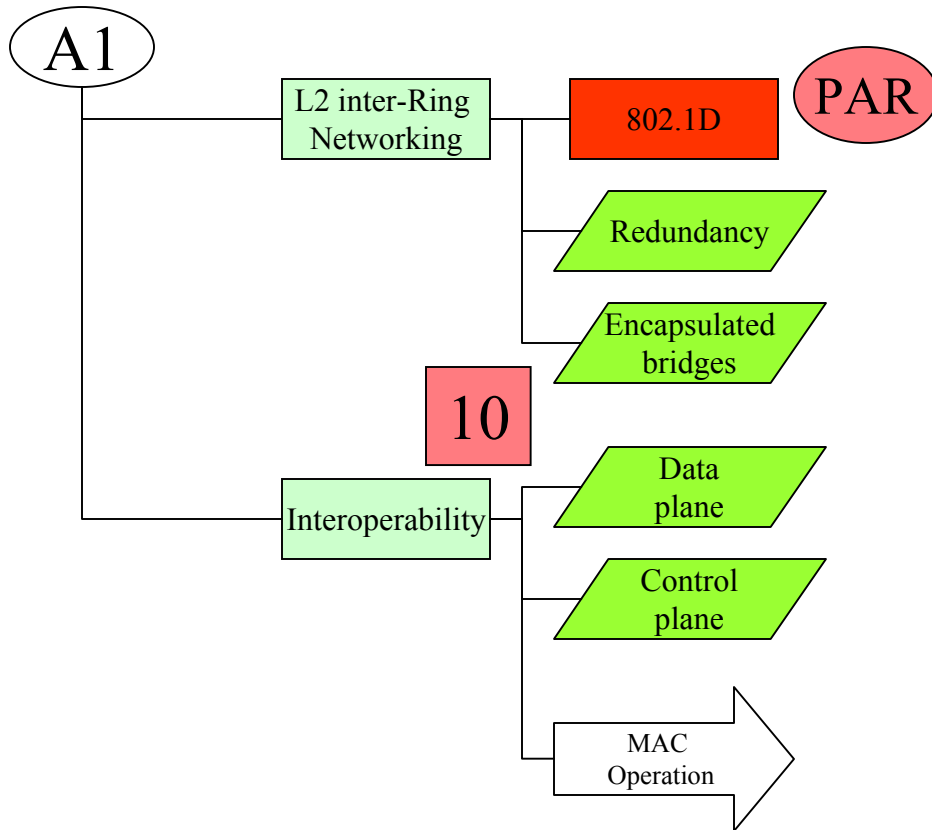
Identifies payload content

Advance evolution

B1







Recommend method of Inter ring connect and 802 link translation

Conclusions:

GAPs to close off objectives other details can be dealt at detail implementation stage

- 1. Ring Size**
- 2. Number of Nodes**
- 3. Homogeneous Ring (check PAR)**
- 4. Contention method**
 - NO Preemption
 - Insertion buffer

Each leaf cell can be a section/sub-section in the standard

- **Implementation Proposals on the table to address details:**
 - Media access: BIR
 - Fairness
 - Protection method