Internet Registry allocation and assignment

Policies

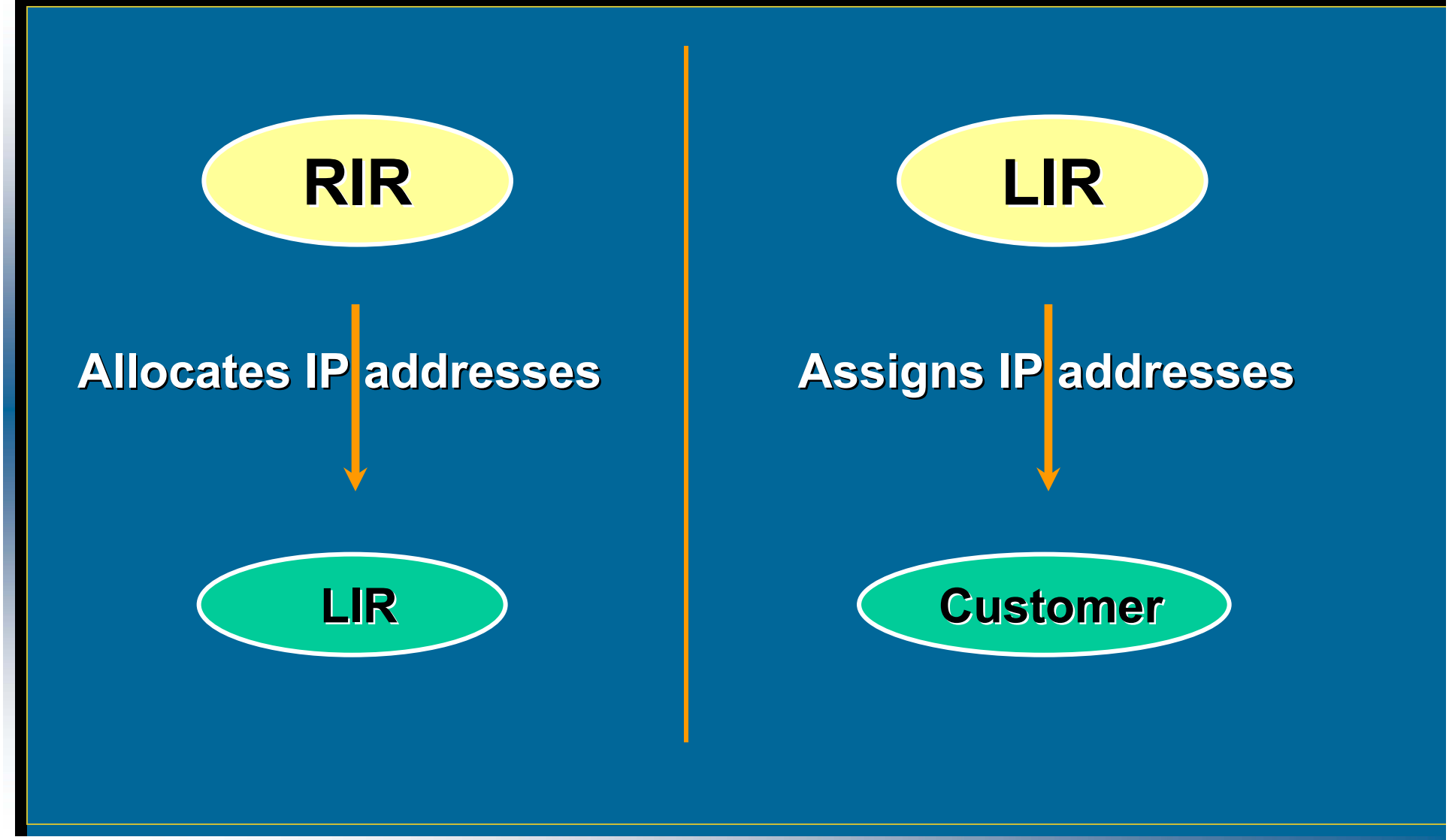
Overview of RIR Policies

- Definitions
- Background
- Objectives
- Environment
- Allocation & Assignment Policies

Definition: Allocation and Assignment

- Allocation
  - A block of address space held by an IR for subsequent allocation or assignment
    - Not yet used to address any networks
- Assignment
  - A block of address space used to address an operational network
  - May be provided to LIR customers, or used for an LIR's infrastructure ('self-assignment')

Definition: Allocation and Assignment

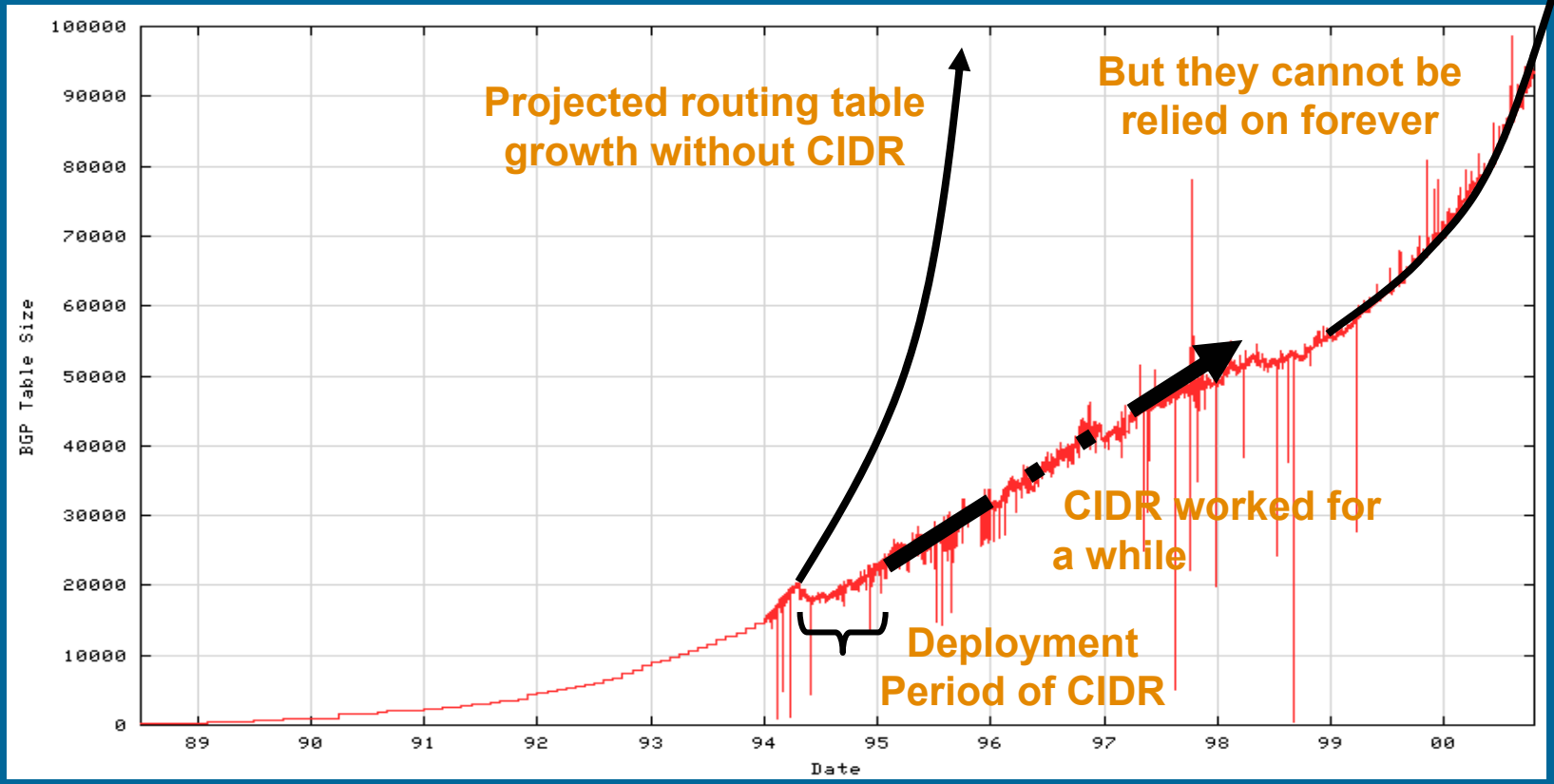


Definition: PI and PA

- Provider Independent (Portable)
  - Customer holds addresses independent from ISP
  - Customer keeps addresses when changing ISP
  - Bad for size of routing tables
  - Bad for QOS: routes may be filtered, flap-dampened
- Provider Aggregatable (Non-portable)
  - Customer uses ISP's address space
  - Customer must renumber if changing ISP
  - Only way to effectively scale the Internet

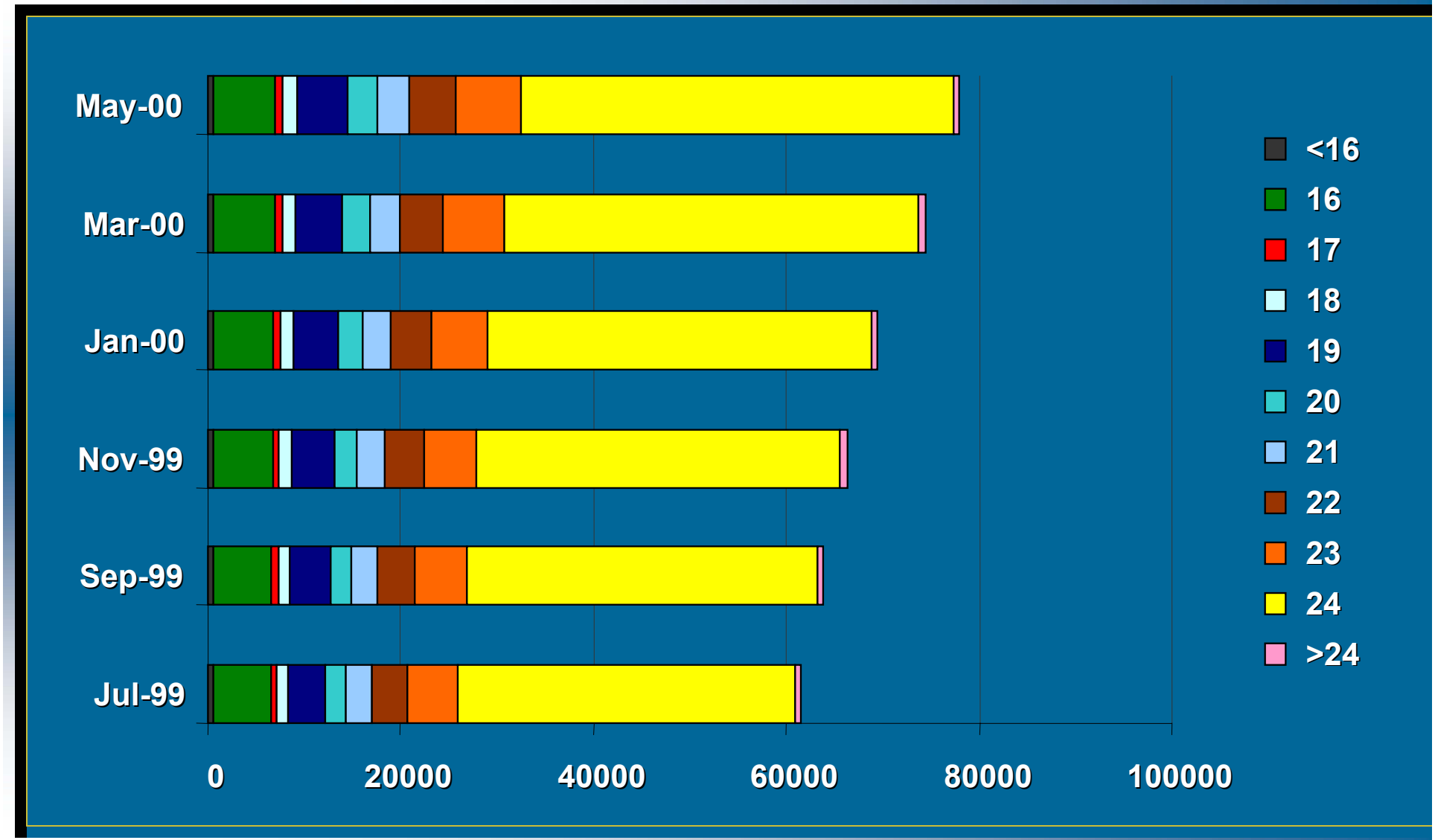
RIR Policies - *Background*

- Growth of Global Routing Table
  - Unaggregated Internet would exceed 200,000 routes!



http://www.telstra.net/ops/bgptable.html

Routing Table Prefix Distribution



RIR Policies - *Objectives*

- Ensuring efficient use and conservation of resources
  - Through careful allocation and assignment policies
- Limiting growth of routable prefixes
  - Through provider-based addressing
- Fairness and consistency of procedures
  - Through neutrality and expertise of registry

RIR Allocation Policies

- IP addresses not freehold property
  - Internet resources are public resources
  - ‘Ownership’ is contrary to management goals
  - Assignments & allocations on lease basis
- Routability not guaranteed
  - ISPs determine routability
- Unpredictable growth rates
  - IPv4 deployment levels unanticipated
  - Routing table growth still poses a threat

RIR Allocation Policies

- Varying levels of expertise
  - Growing technical challenge
  - Staff turnover throughout industry
  - Flexible policies to accommodate differences
  - Training programme to support LIRs
- Confidentiality & security
  - RIR to observe and protect trust relationship
  - Non-disclosure agreement signed by staff

RIR Allocation Policies

- Minimum practical allocation /20
  - 'Slow Start' policy for new LIRs
- Allocations as PA address space
  - Provider responsible for aggregation
  - Customer assignments must be non-portable
- Allocations based on demonstrated need
  - Detailed documentation required
  - All address space held to be declared
  - Stockpiling not permitted

RIR Allocation Policies

- Implement ‘Best current practice’
  - Will change over time as technology changes
    - Static assignments discouraged
      - dial up
      - virtual hosts (IP based web hosting)
    - Address conservation considered
      - implement ‘ip unnumbered’
      - use private address space (rfc1918)
      - consider use of Network Address Translation (NAT)

Questions?