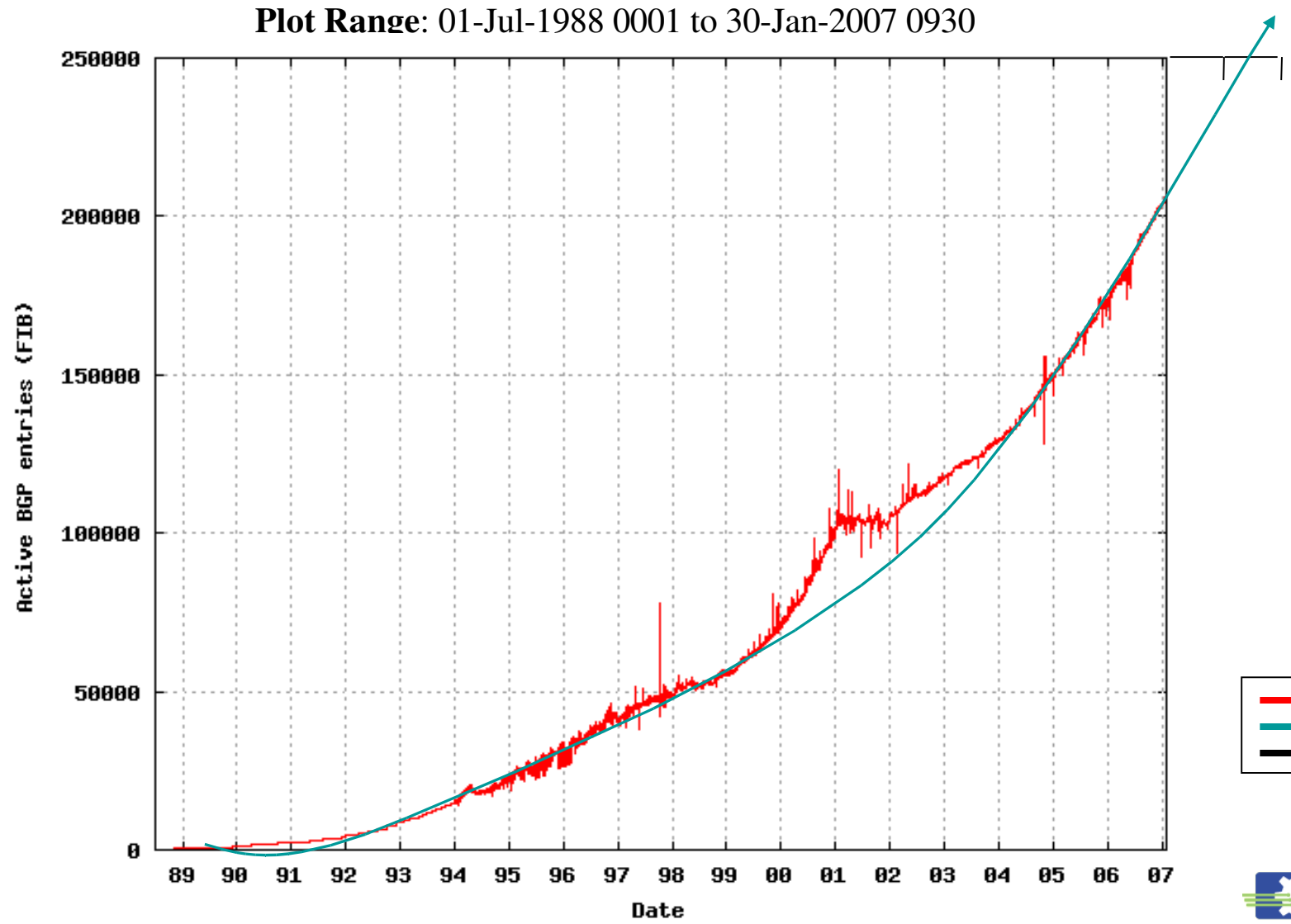
Impact of Growth in the FIB on Hardware

CIDR Report Full Internet Route FIB



FOUNDRY NETWORKS

FIB Post-Processing for Net Aggregation

- Net-Aggregation and DR Aggregation FIB Optimization
- Initially developed to optimize CAM programming and lookups
- Seeing about a 1:4 aggregation in the FIB
- Not a long term solution for older hardware, but has extended life

Net Aggregate

- Optimizes CAM where majority of routes use same next-hop as default route
- Requires default route to be in route table
- Divides address space as /12 prefixes
- Programs the aggregate CAM entries
- Exceptions Routes programmed as more specific CAM entries

DR Aggregate

- Requires a Default Route
- Allows Few Exception routes
- Aggregate entries programmed where possible (next hop same as the default route)
- CAM entries programmed as aggregates in increments of 4 bits (/8, /12, /16)

Recommendations

- **Net-Aggregation and DR-Aggregation**
  - A good Stop-Gap solution
  - Optimizes CAM utilization
  - Eventually will still run out of room leading to software forwarding for routes not in CAM

- **Upgrade is inevitable**
  - Evaluate Upgrade versus Swap-out for larger route size modules and route processors
  - Re-task systems with 256K routes or less capacity if they cannot be upgraded
  - Migrate to systems with 512K (should last till 2014) or greater hardware table sizes