



# The SNIA NAS Management Tech Work Group Status

**N I C  
F N O  
S D N  
U F  
S E  
T R  
R E  
Y N  
C  
E**

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Network Appliance  
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# Who/What/Why

- Storage Network Industry Association (SNIA)
- Storage Management Initiative Specification (SMI-S)
  - version 1.0 to be ratified (ANSI INCITS) later this year
  - version 1.1 will introduce management of NAS devices



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# What NAS devices

- Self-contained NAS system
- Gateway NAS system
- File protocols
  - NFS & CIFS
- Block protocols
  - FC & iSCSI
  - target only



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# SMI-S R1.1 Contents

- Functionality ladder extensions
- Host attachment
- NAS usage of Storage Pools
- NAS usage of Array model
- NAS usage of in-band virtualization
- NAS Volumes support
- NAS Access control
- NAS usage/extension of Copy Services
- File system work (model & services)
- Backup Modeling



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# Functionality ladder - 1

- Identify key resources in a SAN
- Identify how a NAS system is physically connected in a storage network
- Identify what NAS resources are exported to host systems



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# Functionality ladder – 2

- Identify what resources in a storage network are used by a NAS system
- Configure storage for a NAS system
- Configure storage exported by a NAS system
- Configure a file system for a NAS system



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# Functionality ladder – 3

- Setup and use indications for presence of NAS resources
- Determine hosts that access resources on a NAS system and protocols supported
- Determine the performance characteristics of the NAS system
- Determine the health of key resources of a NAS system



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# Functionality ladder – 4

- Establish authenticated and authorized access to resources exported by a NAS system
- Configure the file service protocol to be used by a NAS system





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# Additional ladder/recipes

- copy services
- backup
- host attachment (configuring ports)
- sparing
- failover
- unconfiguring storage



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# Maturity Model Status - 1

- Scoping Phase (mostly done)
  - modeling approach
  - capabilities & requirements (functionality ladder)
  - use cases (draft recipe descriptions)
- Modeling Phase (mostly done)
  - draft instance diagrams
  - draft MOFs
  - CRs created for presentation to DMTF WGs



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# Maturity Model Status – 2

- Recipe phase
  - work in progress with SNIA MAP WG
- Draft phase (target mid-Sept)
  - draft text to be written for TWG review
- Experimental phase (mid-Oct)
  - Entry into SNIA company review



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# Maturity Model Status – 3

- Release Candidate (end of Dec)
  - entry into Public review
- Preliminary Phase (end of Feb04)
- Final Phase (end of Aug04)



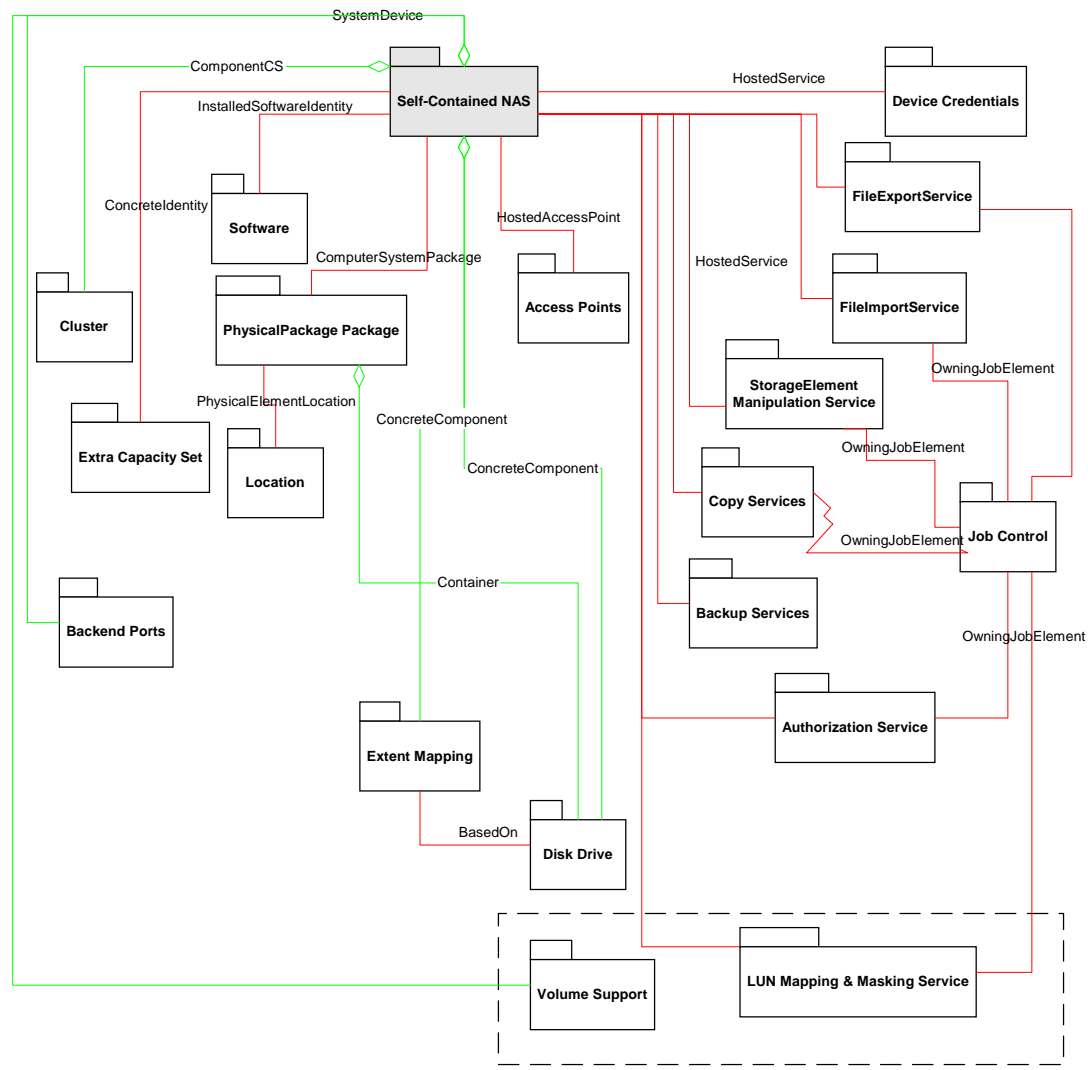
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# Schema Diagrams



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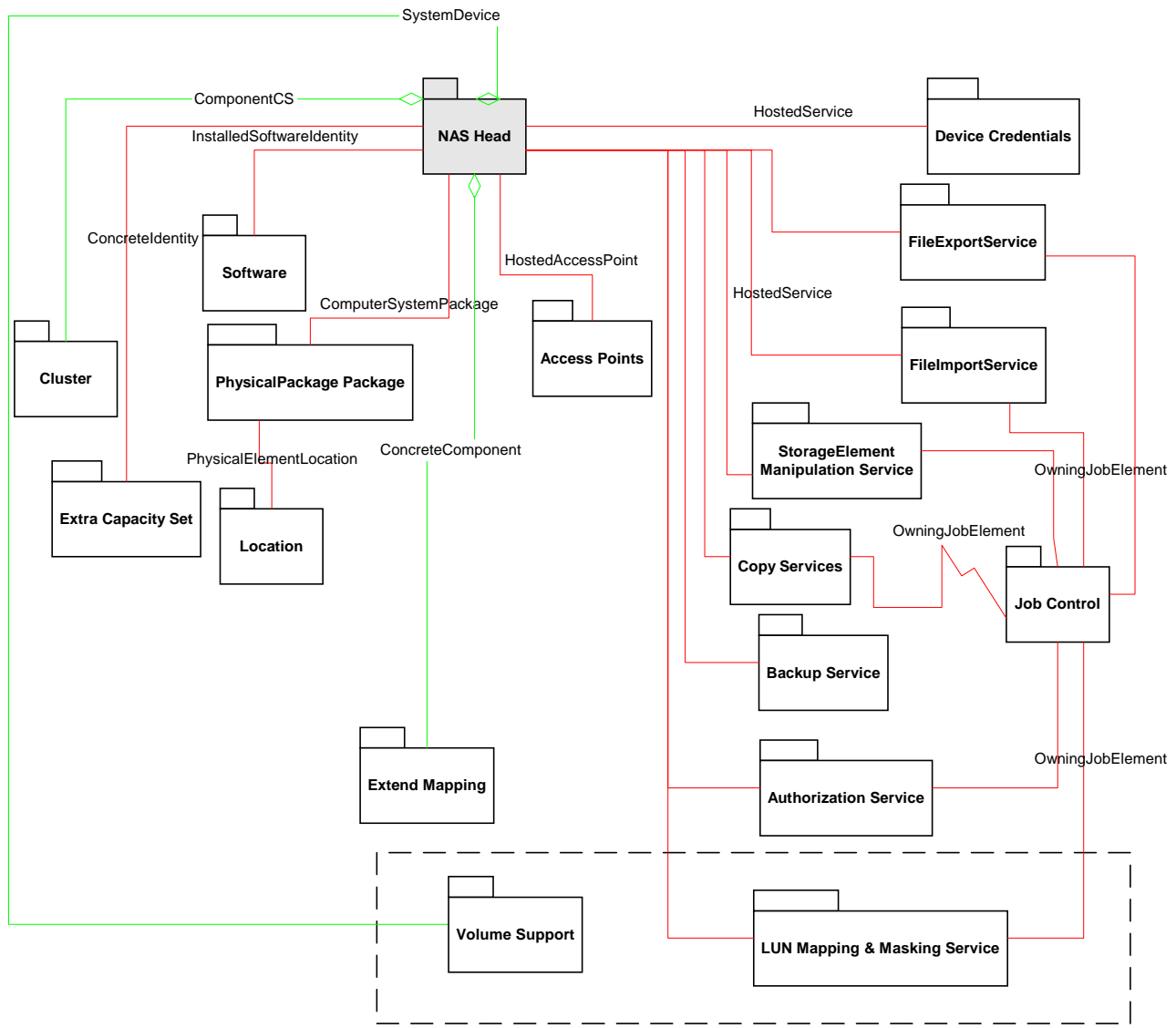
# Self-Contained NAS package





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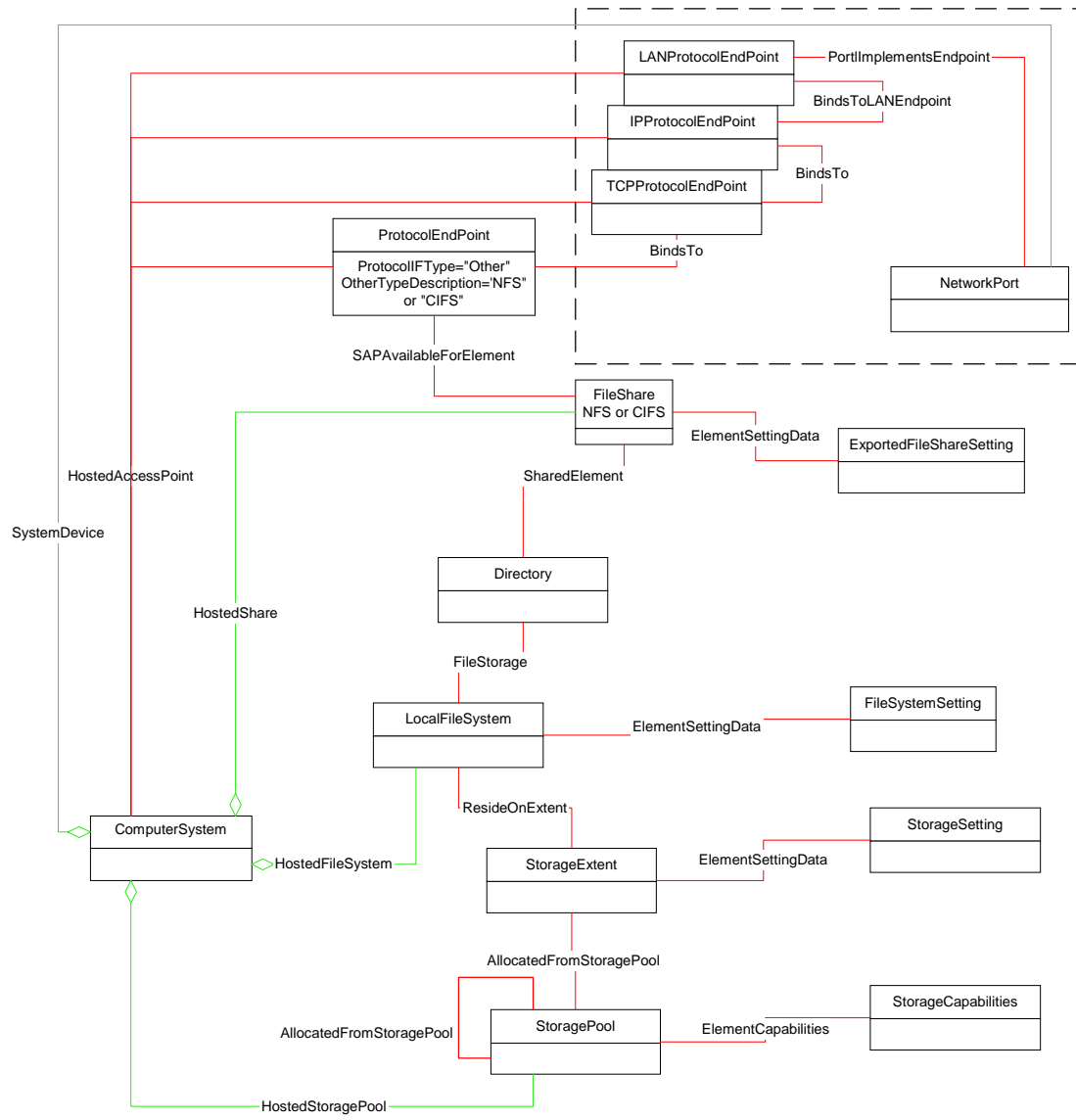
# NAS Head Package





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# Self-contained NAS Required Classes

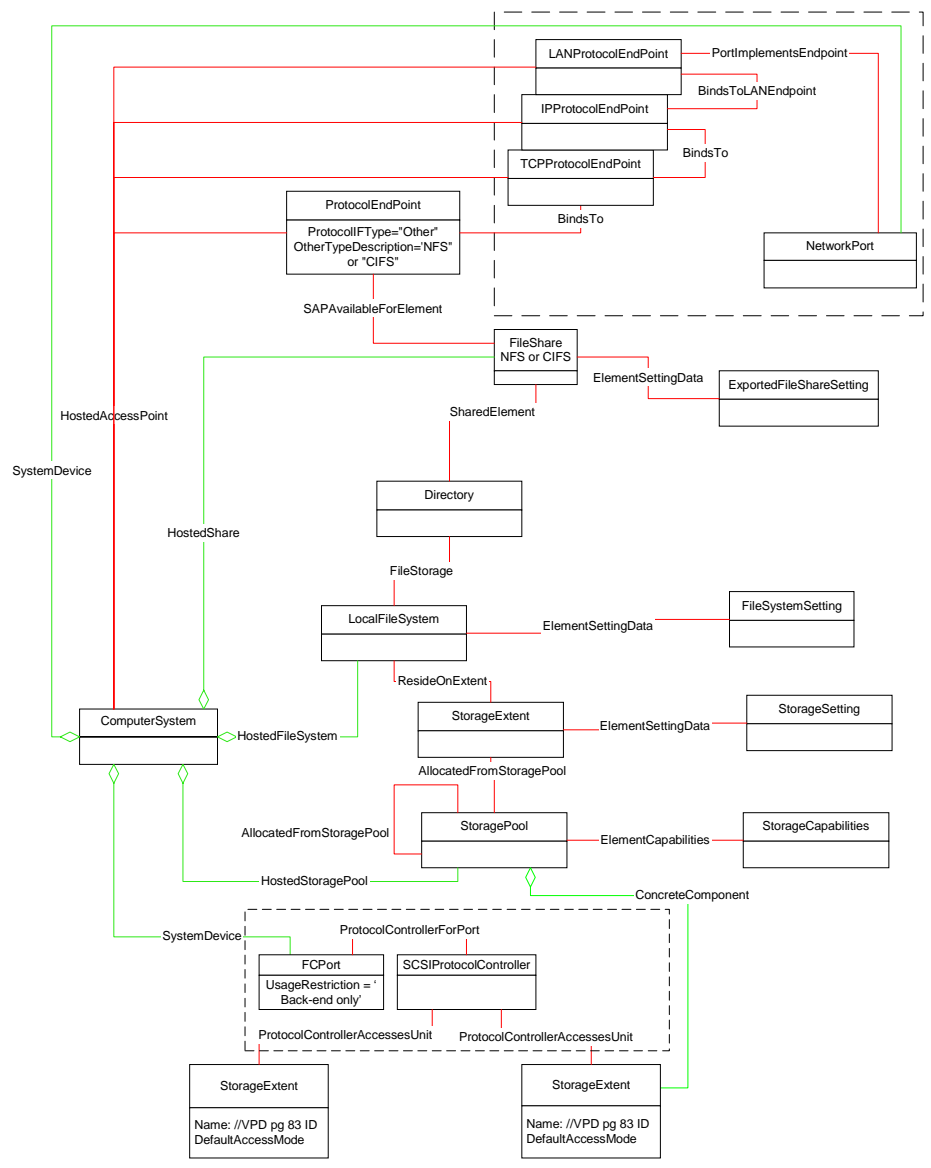






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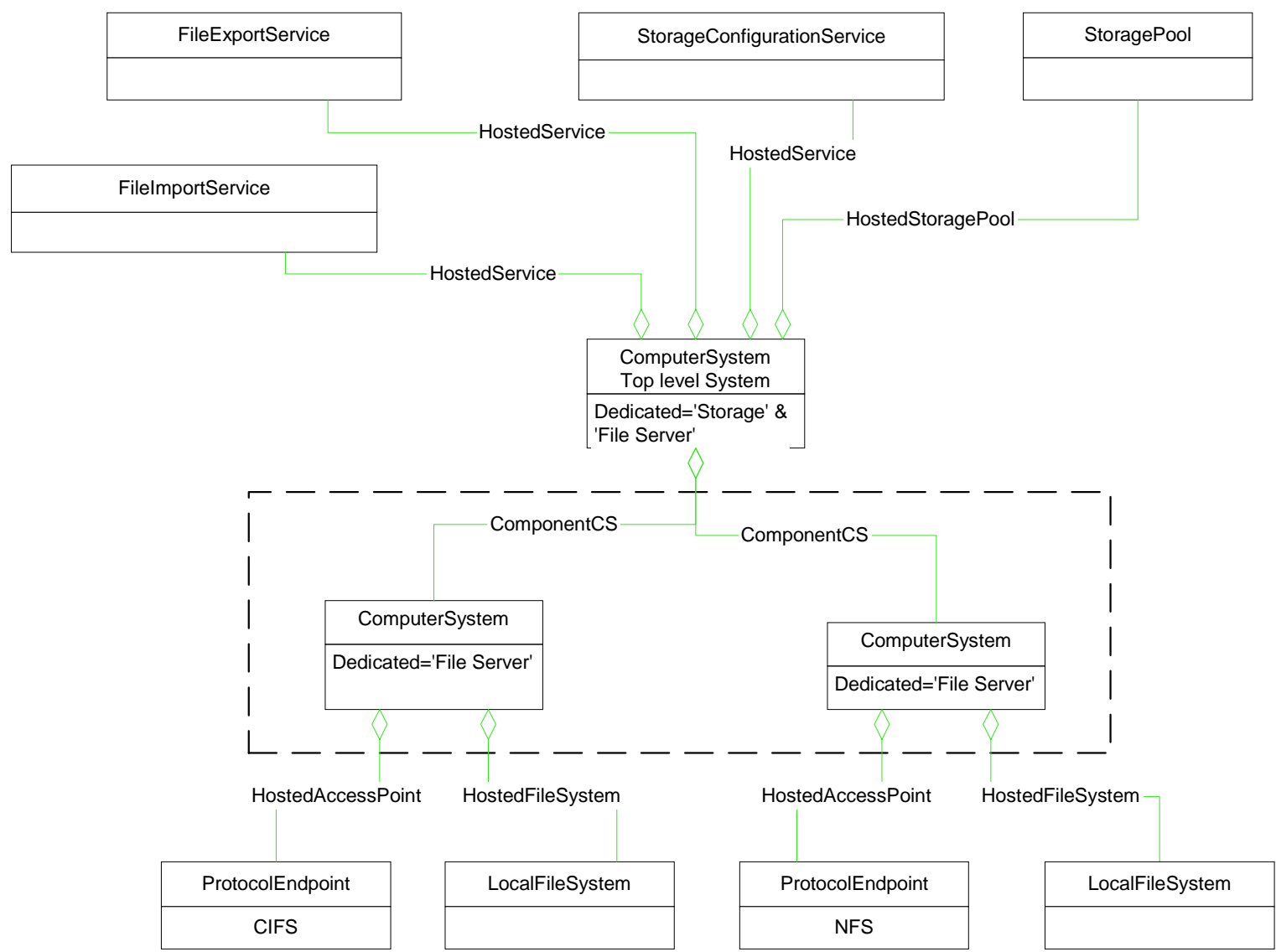
# NAS Head Required Classes





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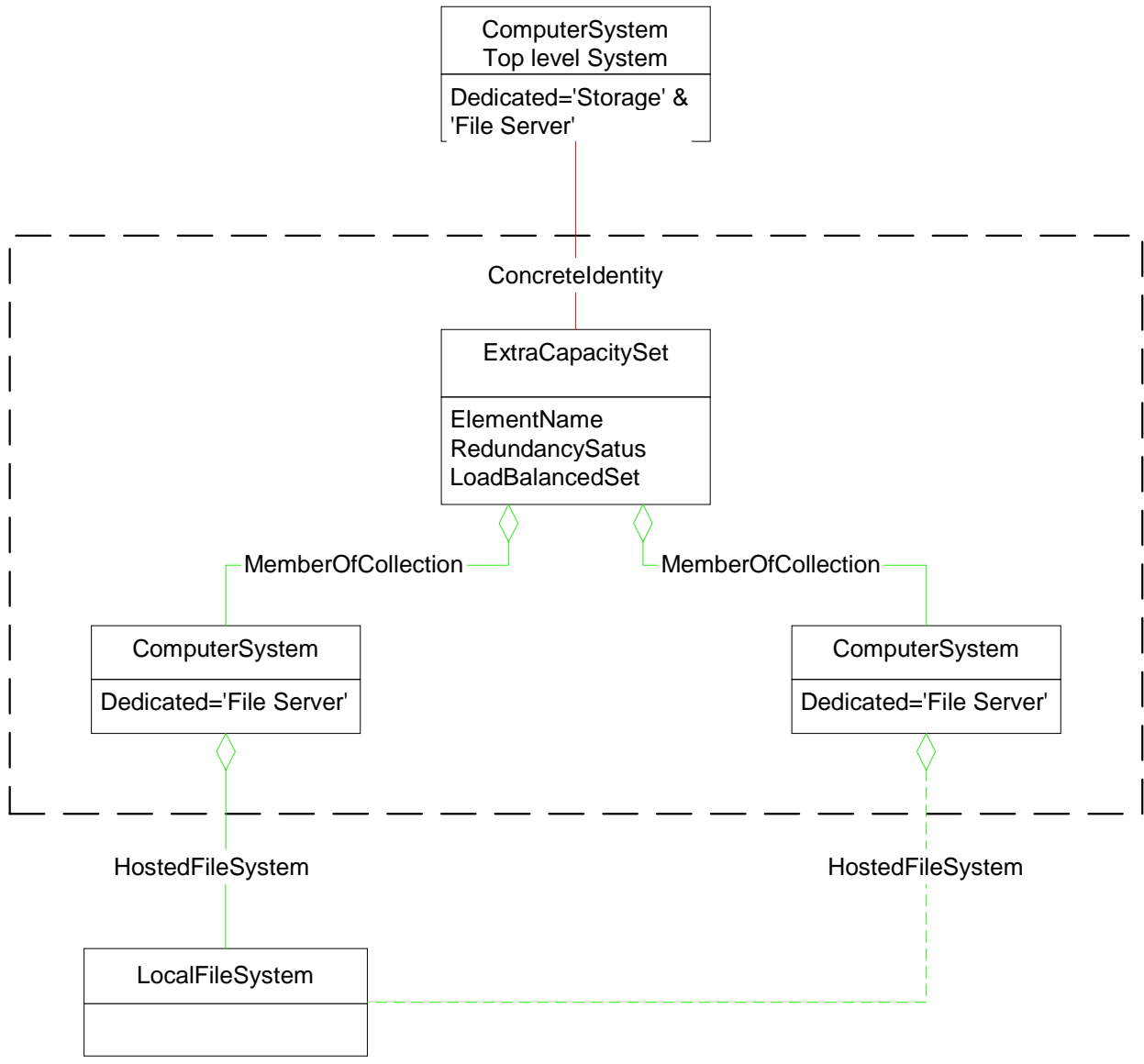
# NAS Cluster Sub-profile





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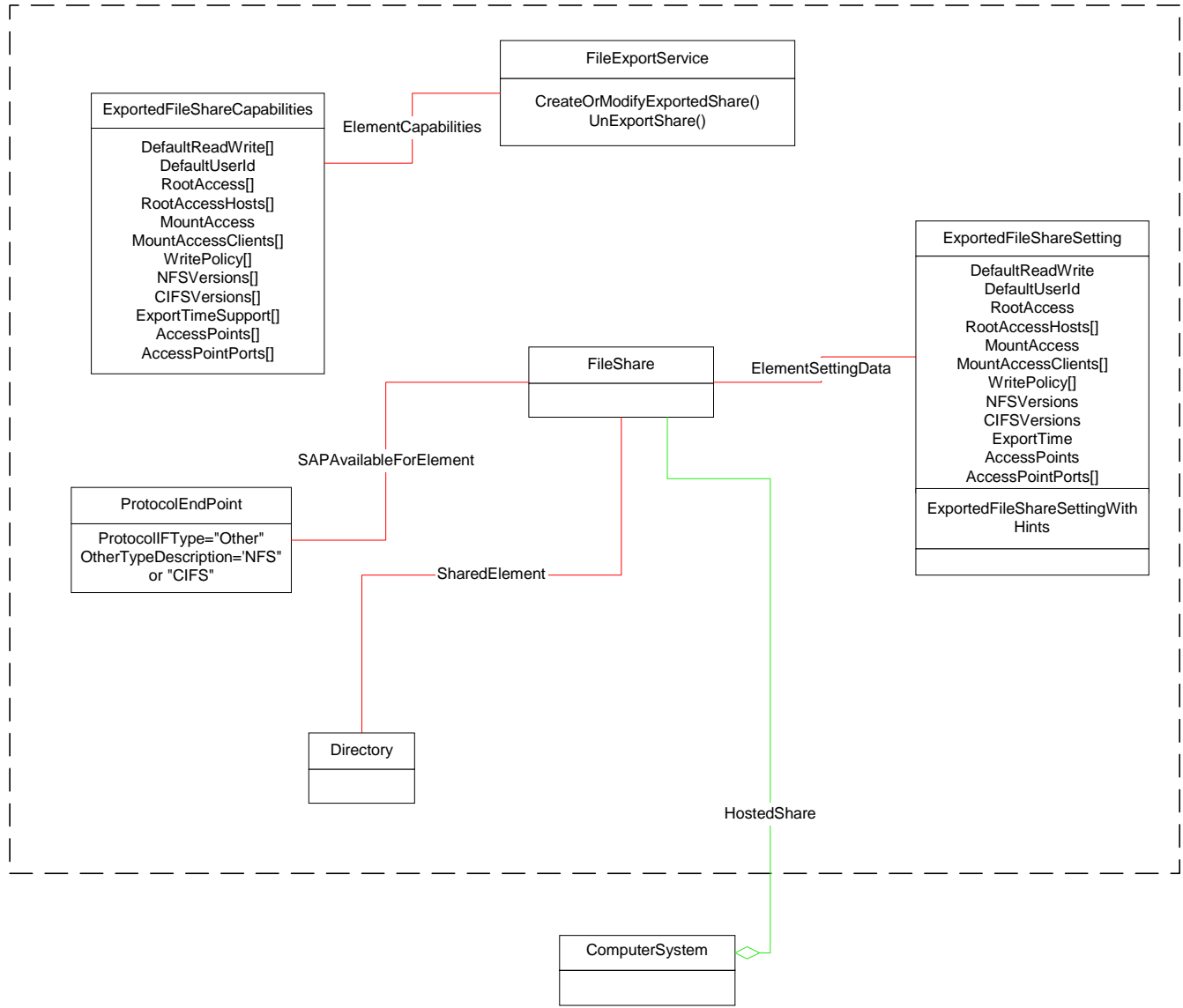
# NAS Extra Capacity Set Sub-profile





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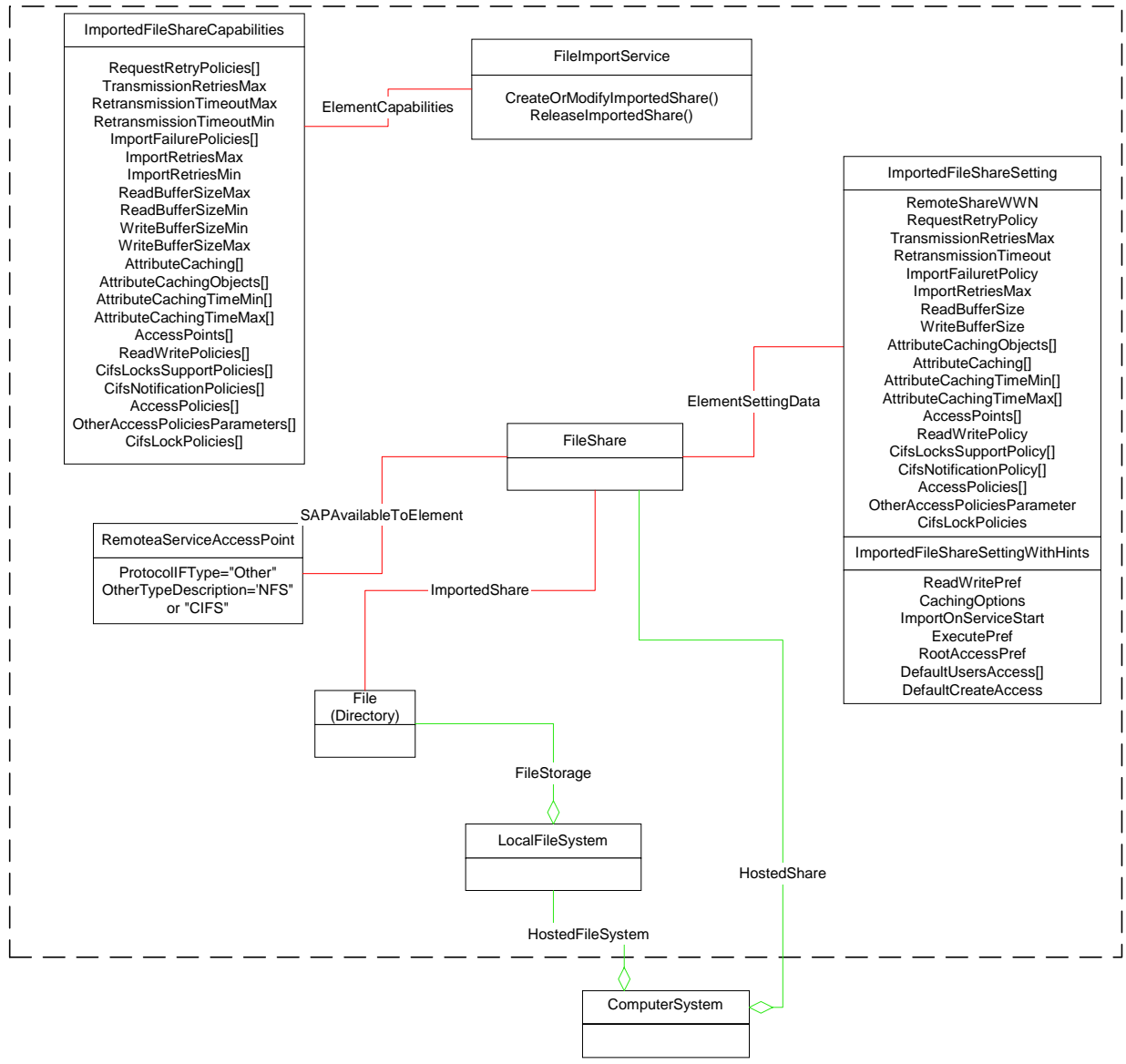
# NAS File Export Service Sub-profile





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# NAS File Import Service Sub-profile





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# NAS Storage Element Manipulation Sub-profile

