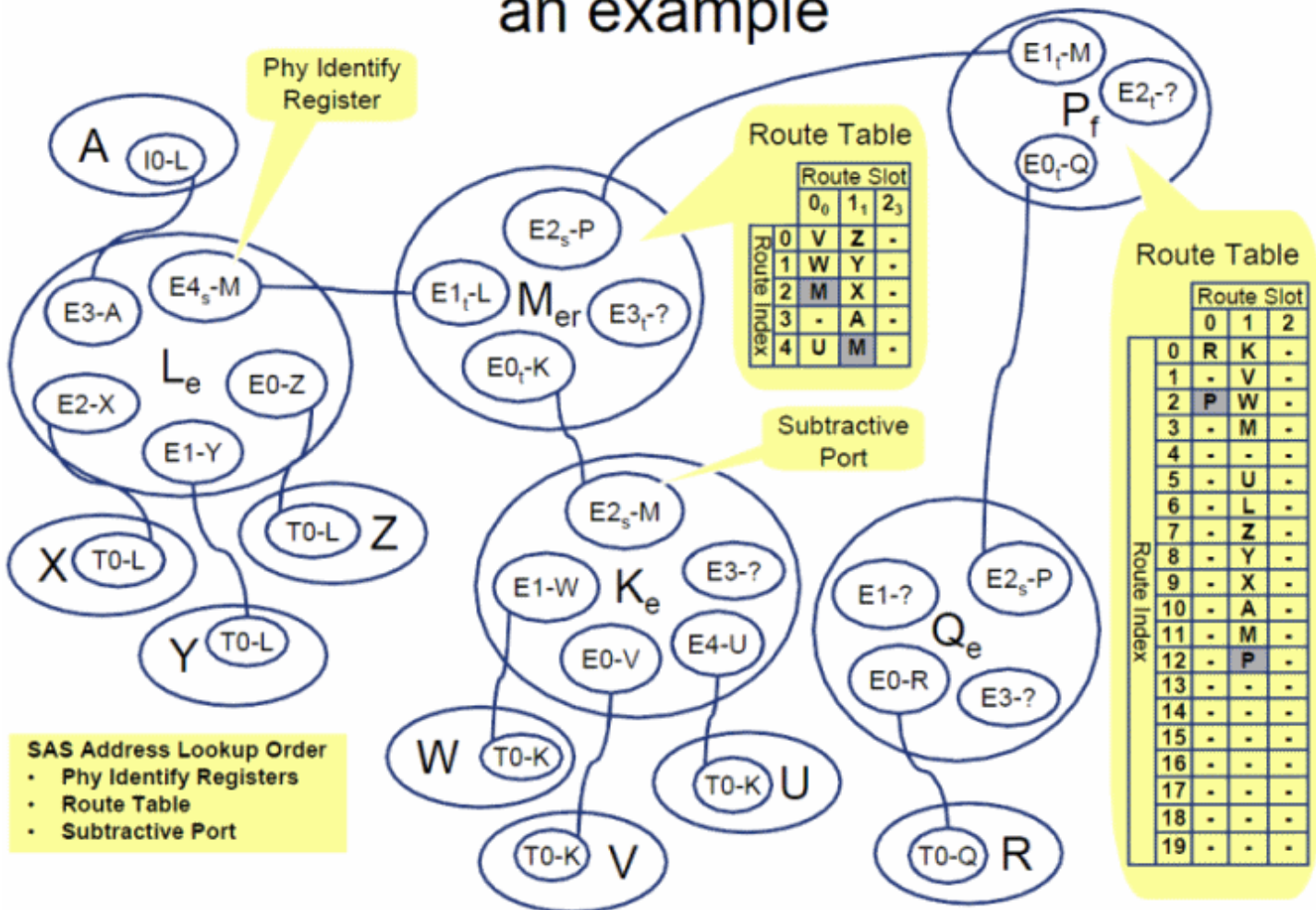


an example



?????, ??????????. 4?edg expanders?1?fanout expander, ??????end device. ?????????, ?????????expander? ????routing method???

??expander????

1. ???SAS expander???, fanout expander?????????root node. ?edge expander?????
2. fanout expander?????subtractive routing??
3. edge expander?????????, ???table routing
4. edge expander?fanout expander??end device???no routing?direct routing

??routing methods???

1. direct routing?????end device????, ??no routing?
2. subtractive routing???1?1, ???expander
3. table routing????????????, ???routing table???

?????, ???expander Pf?, ?????fanout expander, ?????table routing?. ?????edge expander, ?????fanout expander?????edge expander device sets. Qe set?(Mer+Ke+Le) set, ?Mer?????downstream????????, ???table routing?, ???HP????????routing table??.

????????????????????????, ?????edge expander?table routing?????, ??fanout expander????????routing table, ?????expander Mer?????PHY?, E0t-K, E1t-L, E2s-P?E3t-?, ?????PHY?, ??E3t-?????, ?????PHY?, ???PHY????????expander?, ?????,????table routing. ???route index????????PHY?? expander Mer????(routing table??), E0t-K????expander Ke?, Ke????PHY?, ??E3-?????, ?????E0-V, E1-W, E2s-M?E4-U????expander Mer?routing table, ???, ??route index?????. E0-V???, ?????E1-W, E2s-M?e4-U, ?????table?.

	0=>0	1=>1	2=>3
0	V		-
1	W		-
2	M		-
3	-		-
4	U		-

?table?????Ke???PHY???, ?????????????, ???route index=3????????? ?????, ???????E3-?, ??E3-????????, ??????. ?
 ?Ke?????, ???E1t-L???expander Le??. Le????????5?PHY??, ?????E4s-M??Mer, ??subtactive routing. ??route
 index???, ??5?PHY?????????Mer?table?, ?????E0-Z, E1-Y, E2-X, E3-A?E4s-M, ?????table?.

	0=>0	1=>1	2=>3
0	V	Z	-
1	W	Y	-
2	M	X	-
3	-	A	-
4	U	M	-

???Ke?Le??, Mer????routing table??, ???????2=>3?column??????, ?????????E3t-???, ??????????, ?????column??.
 ?????????????fanour expander Pf??. Pf?????3?PHY??, E0t-Q, E1t-M?E2t-?, ??E2t-????????, ??????. ??route index?
 ?, ??E0t-Q????, E0t-Q??expander Q??, ?entry????4?PHY??, E0-R, E1-?, E2s-P?E3-?, ??E1-??E3-?????????, ?????
 ?, ?????E0-R?????E2s-P.

	0	1	2
0	R		-
1	-		-
2	P		-
3	-		-

??Pf?Qe?????????, ??????????????edge expander device set?????????. E1t-M??Mer??, ??route index??, ???E0t-K
 ??, ??E0t-K????, ??PHY??Ke??, ??Mer???Ke????????, ?????Ke????????Pf?table?, Ke????Pf????????expander??,
 ?????Ke???PHY???route index????.

	0	1	2
0	R	K	-
1	-	V	-
2	P	W	-
3	-	M	-
4	-	-	-
5	-	U	-

??Ke????????, ?E1t-L??, ?????Le, Mer????Le????????, ?????????????????Pf?table?. ?E1t-L????.

	0	1	2
0	R	K	-
1	-	V	-
2	P	W	-
3	-	M	-
4	-	-	-
5	-	U	-
6	-	L	-
7	-	Z	-
8	-	Y	-
9	-	X	-
10	-	A	-
11	-	M	-

??Mer??downstream????????????, ???Mer????????PHY???, ?Mer????E2s-P????Pf?table, ???PHY??????, E3t-????????????, ??????.

	0	1	2
0	R	K	-
1	-	V	-
2	P	W	-
3	-	M	-
4	-	-	-
5	-	U	-
6	-	L	-
7	-	Z	-
8	-	Y	-
9	-	X	-
10	-	A	-
11	-	M	-
12	-	P	-
13	-	-	-

????Pf?Mer?routing table?, ?Pf??fanout expander?????, fanout expander????????routing table???? downstream?????, edge expander device set????expander???, ???set????????, ???fanout expander????, fanout expander?routing table?????????????. ??HP????????SAS Expander????????, ?????????, ?????SAS Expander????????, ?????????????, ?????SAS Expander????????????.