Tier-1 Export
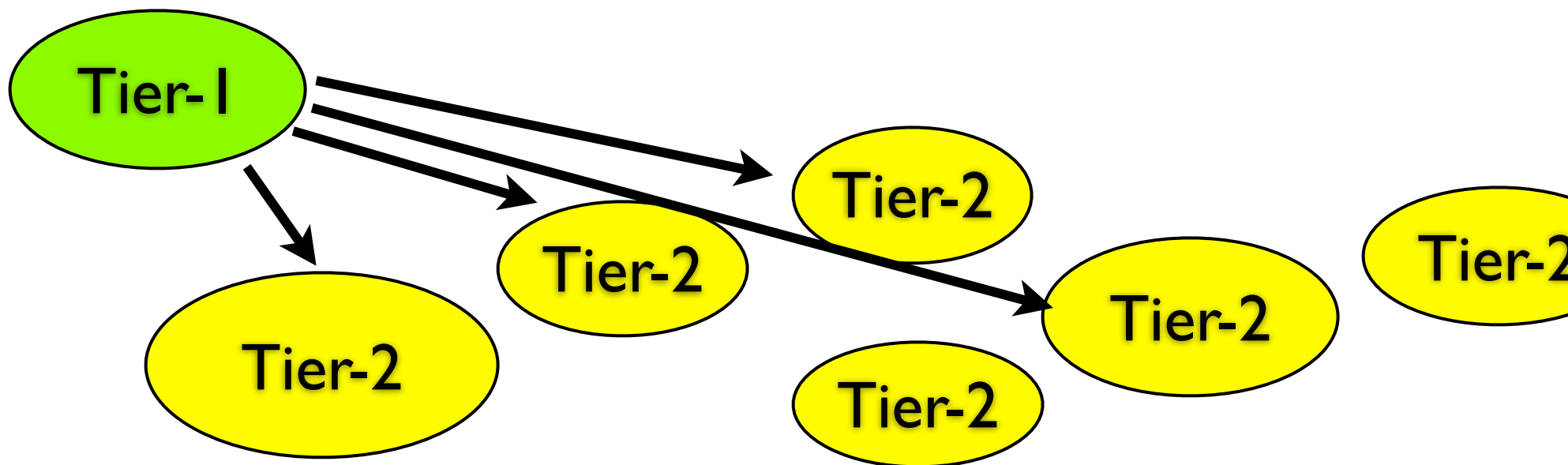
Ian Fisk
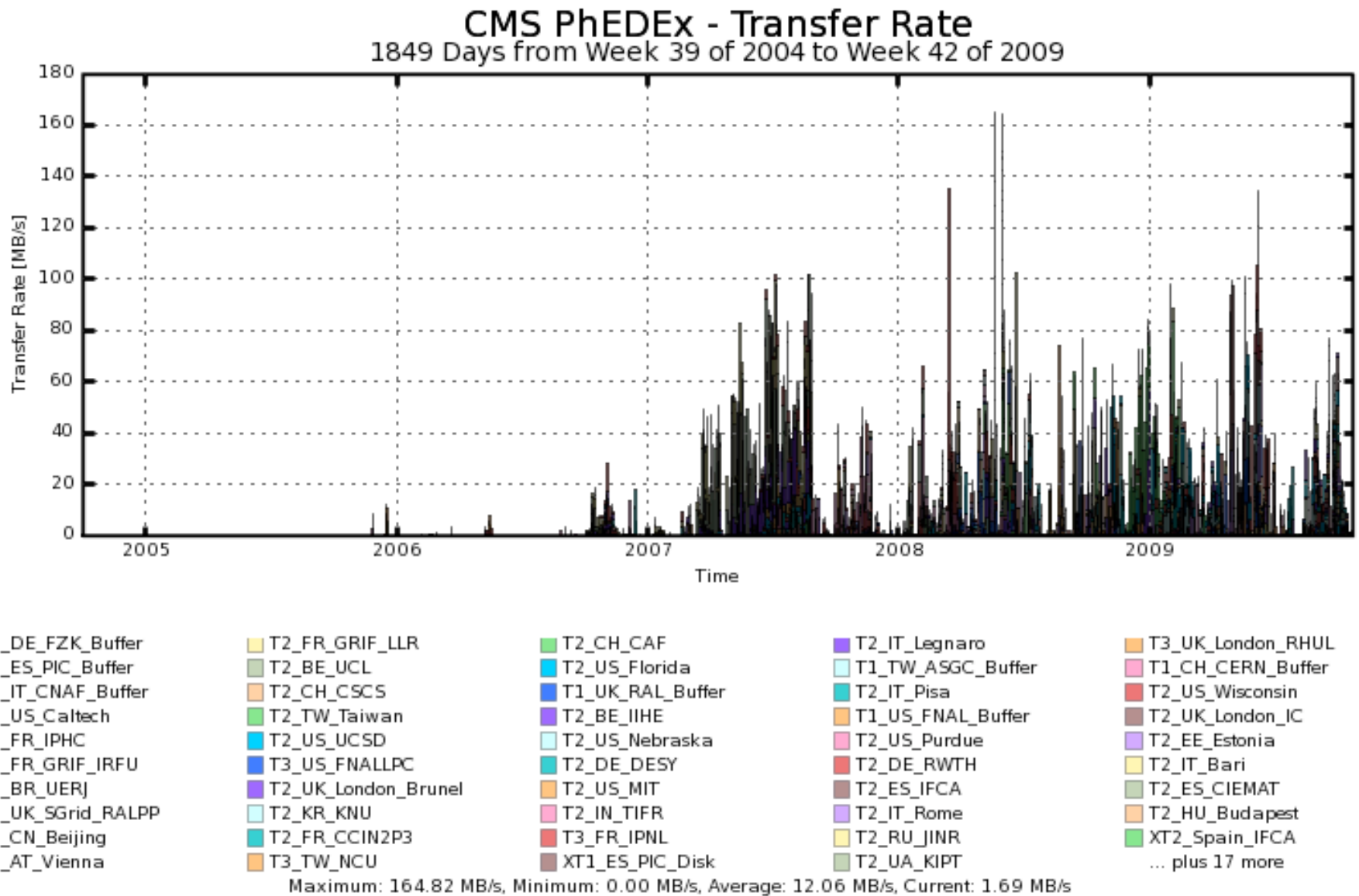
Tier-1 Centers are entrusted with CMS custodial data for archiving, processing, and data serving

➡ The Tier-2 sites in CMS requesting data samples can come from anywhere

● The rate to Tier-2s is driven by user bursts and is expected in the CTDR to reach 50MB/s for slower links to bursts to 500MB/s for faster links

➡ Serving of AOD samples can come from any Tier-1

CMS PhEDEx - Transfer Rate
1849 Days from Week 39 of 2004 to Week 42 of 2009

■ T1_DE_FZK_Buffer	■ T2_FR_GRIF_LLR	■ T2_CH_CAF	■ T2_IT_Legnaro	■ T3_UK_London_RHUL
■ T1_ES_PIC_Buffer	■ T2_BE_UCL	■ T2_US_Florida	■ T1_TW_ASGC_Buffer	■ T1_CH_CERN_Buffer
■ T1_IT_CNAF_Buffer	■ T2_CH_CSCS	■ T1_UK_RAL_Buffer	■ T2_IT_Pisa	■ T2_US_Wisconsin
■ T2_US_Caltech	■ T2_TW_Taiwan	■ T2_BE_IIHE	■ T1_US_FNAL_Buffer	■ T2_UK_London_IC
■ T2_FR_IPHC	■ T2_US_UCSD	■ T2_US_Nebraska	■ T2_US_Purdue	■ T2_EE_Estonia
■ T2_FR_GRIF_IRFU	■ T3_US_FNALLPC	■ T2_DE_DESY	■ T2_DE_RWTH	■ T2_IT_Bari
■ T2_BR_UERJ	■ T2_UK_London_Brunel	■ T2_US_MIT	■ T2_ES_IFCA	■ T2_ES_CIEMAT
■ T2_UK_SGrid_RALPP	■ T2_KR_KNU	■ T2_IN_TIFR	■ T2_IT_Rome	■ T2_HU_Budapest
■ T2_CN_Beijing	■ T2_FR_CCIN2P3	■ T3_FR_IPNL	■ T2_RU_JINR	■ XT2_Spain_IFCA
■ T2_AT_Vienna	■ T3_TW_NCU	■ XT1_ES_PIC_Disk	■ T2_UA_KIPT	... plus 17 more

Maximum: 164.82 MB/s, Minimum: 0.00 MB/s, Average: 12.06 MB/s, Current: 1.69 MB/s

Average Link Rates

Looking at the maximum daily averages on links between CCIN2P3 and Tier-2 sites over the last 5 years

➡ Average maximum 24 hour rate is 36MB/s

- No 24h period with greater than 100MB/s
- Maximum Rate from CCIN2P3 to total Tier-2s in 24 hours is 165MB/s

➡ CMS Planning Number based on custodial data expected at IN2P3 is 500MB/s