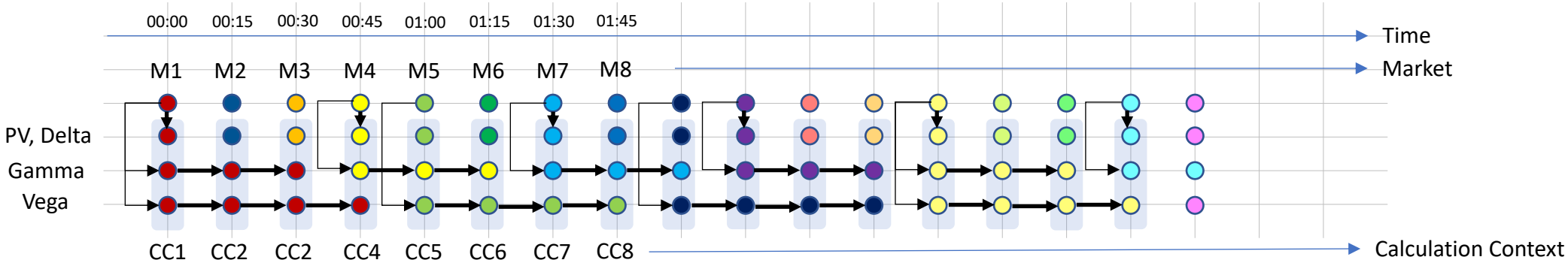
Explained: Market, Calculation Context, Calculations



The above diagram depicts the relationship between time, markets, calculation type (e.g., PV, Delta..) and calculation contexts

Markets:

A market (M*i*) is created periodically, the period is configurable and is defined for each 'trading desk'. When a new market is created, a set of calculation types are triggered. Which calculation types are calculated is defined by an association of calculation type to market periodicity. In the diagram above calculation types PV and Delta are calculated on every new market (shown by correspondence in colour of the market and the market of the type). Gamma is calculated on every fourth market and Vega on every fifth market.

Calculation Context:

At any period in time the Calculation Context is the set of markets needed to calculate the calculation types. Given that each calculation type may have a different market periodicity, it is important to retain the current market needed to calculate a particular calculation type. The calculation context can be used to determine how to calculate each calculation type for a new trade that arrives in between market changes.

Trade Population and Trade Activity:

The above describes the simple case of calculating any calculation type for a fixed set of trades (trade population). However in practice trades are being added, removed and modified between the market periods (e.g., a new trade is added to the trade population between 01:00 and 01:15). In this case the Calculation Context is used to determine which market is used for calculation type. Given the trade arrived after 01:00 then CC5 is used. The PV and Delta for the trade are calculated using market M5, Gamma using market M4 and Vega using market M5. If a new trade arrives after 01:45 but before 02:00 the CC8 is used. PV and Delta are calculated using M8, Gamma using M7 and Vega using M5.

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