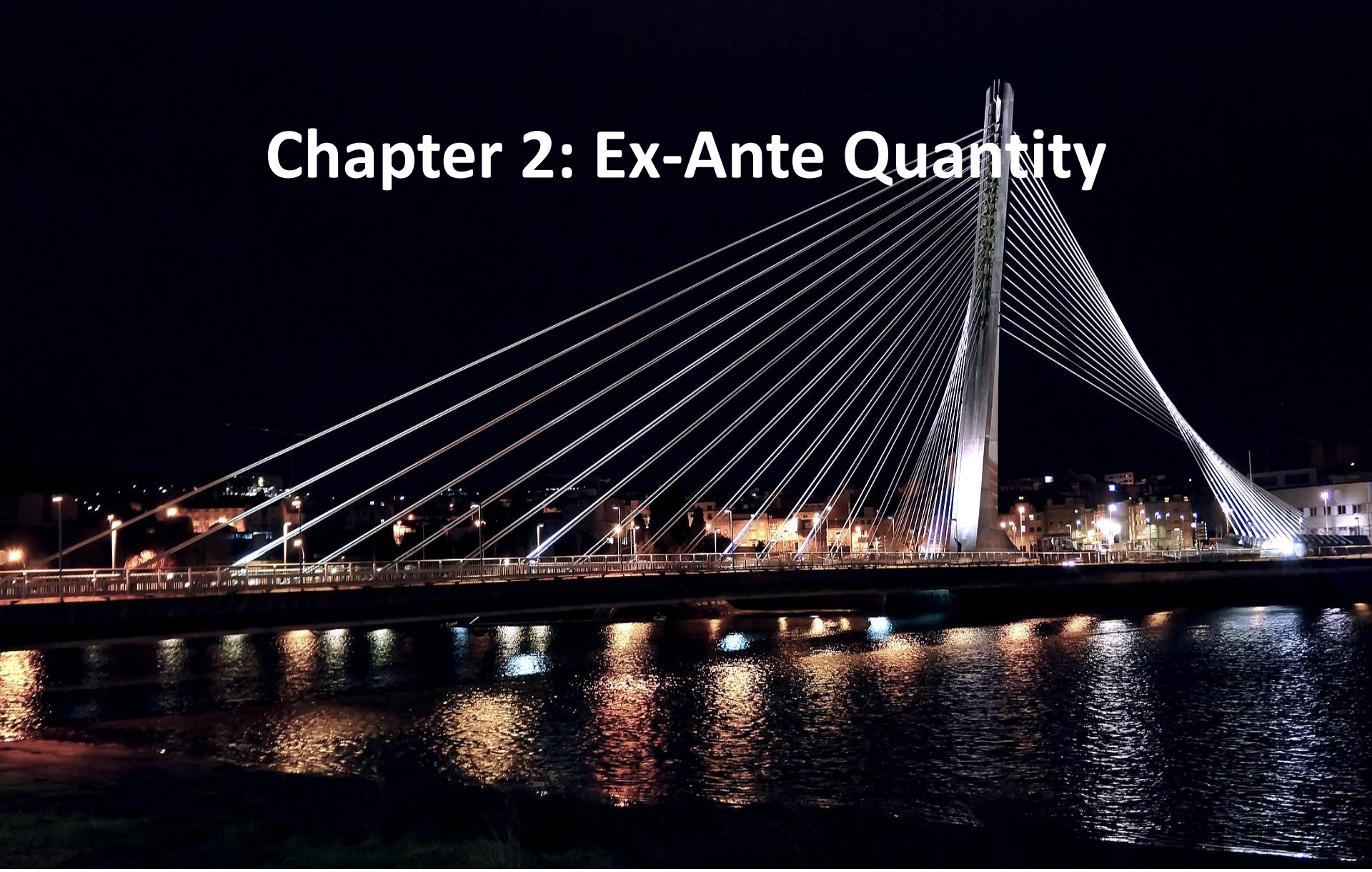
Chapter 2: Ex-Ante Quantity



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Ex-Ante Quantity

- The Ex-ante Quantity is an energy representation of the net trades a unit carried out for an Imbalance Settlement Period in the ex-ante markets (the Day-ahead and Intraday Markets). This is the amount of energy in that period a unit must provide in order to be balance responsible;
- The Day-ahead and Intraday Trade Quantities are in MW with different durations depending on the product traded, while the Metered Quantities are in MWh for the half-hour Imbalance Settlement Period;
- Therefore to compare like-with-like, conversion to MWh and the split of longer resolution products into each Imbalance Settlement Period is achieved by multiplying the trade quantity by the relevant period of time:
  - If the trade is for a period of time smaller than, and wholly within, the Imbalance Settlement Period, the duration of the period of that trade gives the amount of energy that trade contributes to the Imbalance Settlement Period;
  - If the trade is for a period of time greater than or equal to the Imbalance settlement Period, the Imbalance Settlement Period Duration gives the amount of energy that trade contributes to the Imbalance Settlement Period.
- The SEM Committee decision outlined the need for the functionality of two approaches for calculating imbalance amounts being included in the rules, with only one of the approaches being used depending on circumstances as determined by the RAs. Therefore there are provisions for both in the TSC rules.

Ex-Ante Quantity

- The first is the equal split approach:
  - This is the baseline functionality which will be used in all cases from I-SEM go-live, only changing if the RAs make a decision to change the approach some time in the future;
  - This approach means that any ex-ante market trades which span a period of time greater than an Imbalance Settlement Period are split evenly into each Imbalance Settlement Period it spans;
  - This approach means that participants are responsible for using ex-ante market products at the same resolution as the Imbalance Settlement Period to ensure that their Ex-ante Quantity will equal their actual output or consumption;
  - For example if a Supplier Unit traded -100MW consumption over an hour Trading Period in the Day-Ahead Market, but thinks that their customers' consumption would be more like -97MW in the first half hour and -103MW in the second half hour, they would need to trade in the Intraday Market +3MW for a half hour Trading Period for the first half-hour, and -3MW for a half hour Trading Period for the second half-hour.

Ex-Ante Quantity

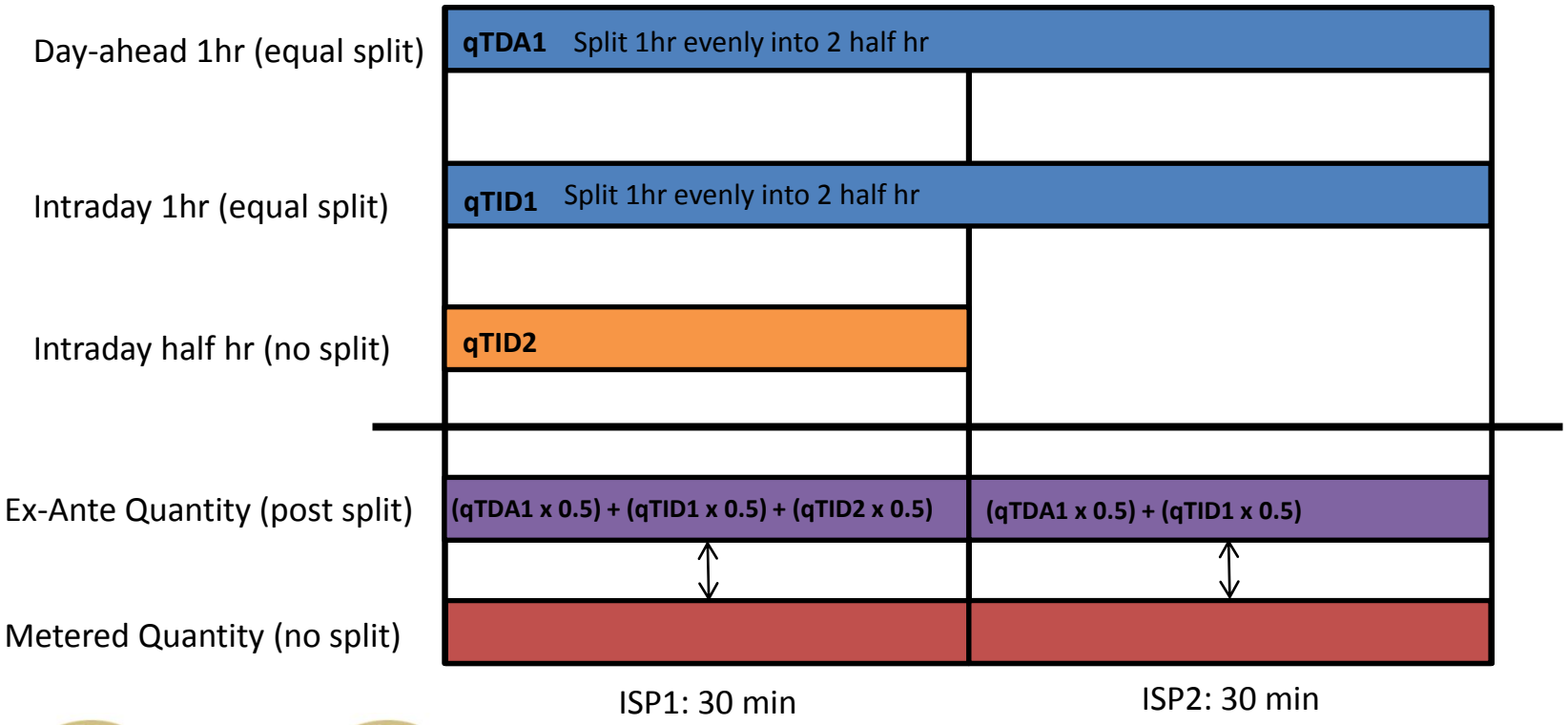
- The second is the hourly weighted average price approach:
  - This will not be used for go-live, but the rules have been developed to allow for its use if the RAs decide it is required;
  - This approach is only to be used if participants have no route to manage exposure to imbalances through having ex-ante trading products at Imbalance Settlement Period resolution;
  - The functionality is based on calculating over an hour the imbalance of ex-ante market trades which have longer resolution than the Imbalance Settlement Period, by comparing the total quantity of those trades against the total metered quantity over that hour, and applies a weighted average price to this hourly imbalance;
  - For example, if a Supplier Unit traded -100MW for an hour in the Day-ahead Market, and their customers' actual consumption was -97MW in the first half hour and -103MW in the second half hour, the imbalance to be settled would be seen as zero over the hour. This is different to what would happen under the approach to apply from go-live, which would see a +3MW imbalance in the first period and -3MW imbalance in the second period, which have to be traded by the unit to remove the imbalance exposure;
  - The means of implementing the average price is to calculate the Ex-ante Quantity to split the trade quantities between the Imbalance Settlement Periods in such a way that the net of the resulting Imbalance Component Payments or Charges in each individual half hour period would be the same as if a single hourly payment or charge, with the average of the prices over the hour, were calculated. This allows for the general settlement structure to be maintained between the approaches.

Ex-Ante Quantity

- The reason for the second averaging approach was concerns over the imbalances which could arise from having a shorter imbalance settlement period than the trading period for ex-ante products:
  - If a unit does not have access to products with the same granularity as the Imbalance Settlement Period, they could provide / consume over an hour the exact amount they have traded but still be subject to imbalances in each individual half hour.
  - For example, a unit could trade 100MW in an hourly Day-ahead Market product, meaning 100MWh needs to be produced in that hour. However the unit may need to physically ramp over the hour in order to provide that amount, for instance having an instant MW output of 80MW at the start of the hour and 120MW at the end of the hour. If this results in 45MWh metered output in the first period, and 55MWh metered output in the second period, under this approach these would be added together to be compared with the hourly product traded of 100MWh, meaning zero imbalance. Under the approach to apply from go-live, the 45MWh QM in the first period would be compared with 50MWh QEX, meaning an imbalance unless the unit trade -10MW (resulting in -5MWh) in that period, and similar for the second period.
- There are half-hour resolution products in the interim intraday solution, so this average price approach will not apply for I-SEM go-live, the equal split approach will apply;
- The approach chosen will apply to all units in all periods, with a change in approach only possible if the RAs decide that such a change to all units is required in general, i.e. this cannot change from period to period, but can be a wholesale change in approach following an RA decision.

Ex-Ante Quantity

- Example of equal split approach:
  - Generator Unit wants to output at 150MW but needs to ramp up in first period to get there;
  - Imbalance Settlement Period Duration 30 minutes, products of this length available.



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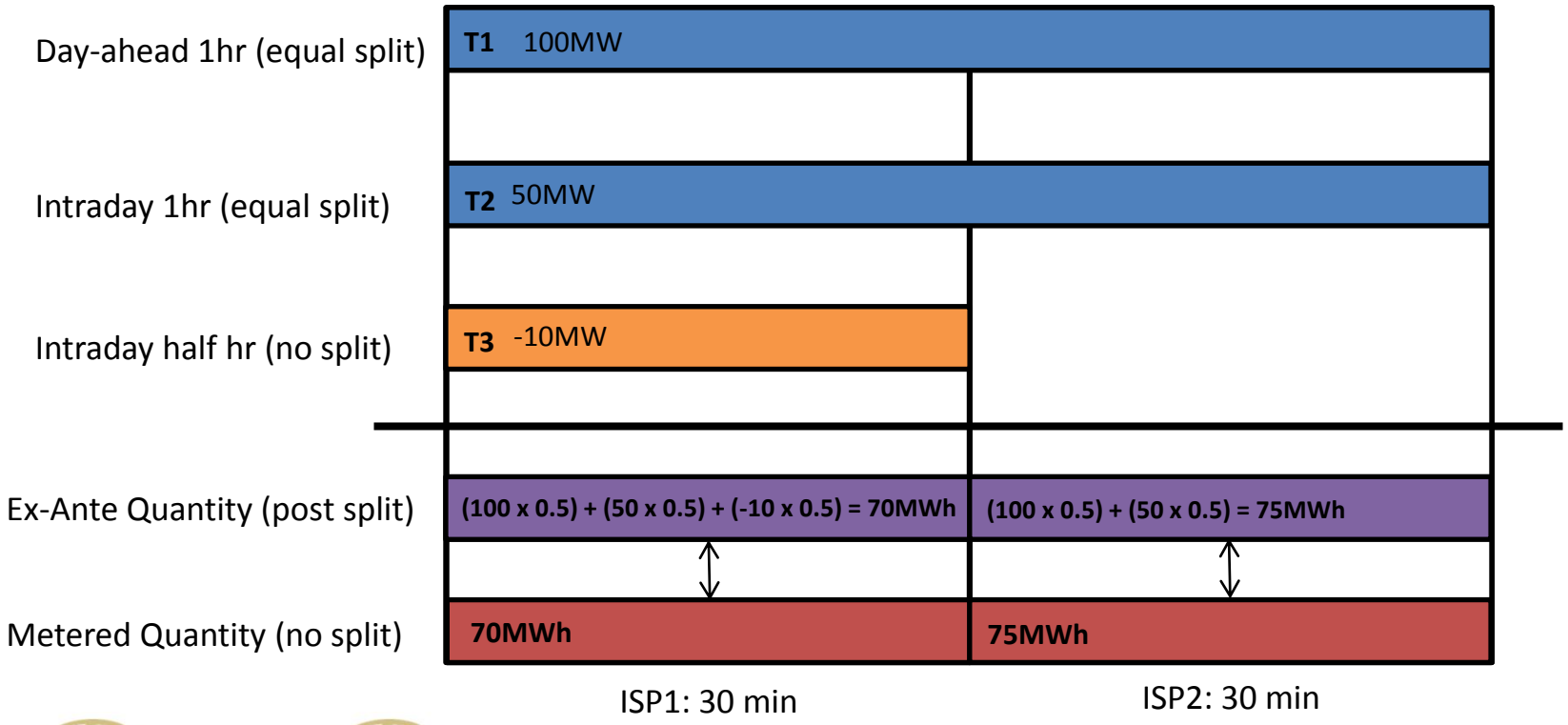
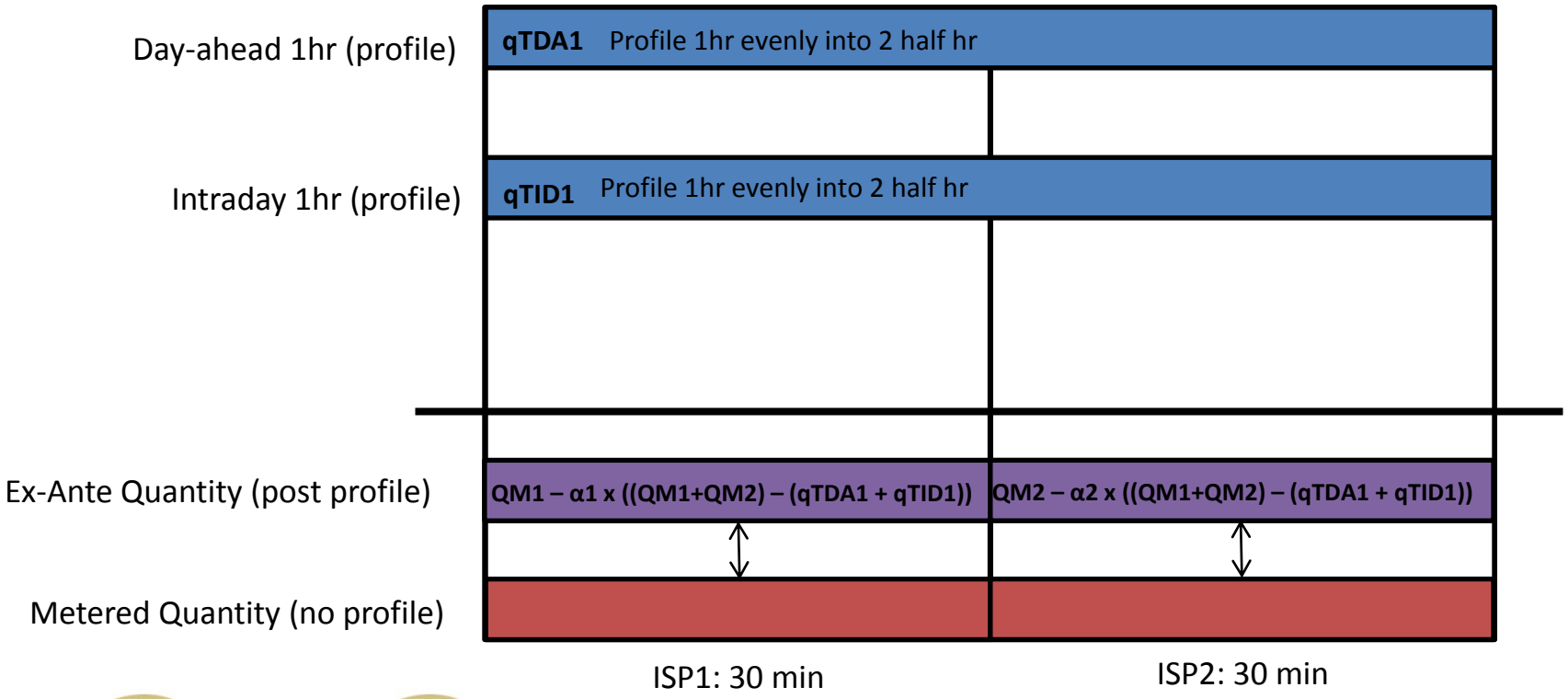


Ex-Ante Quantity

- Example of average price approach (unweighted):
  - Generator Unit wants to output at 150MW but needs to ramp up in first period to get there;
  - Imbalance Settlement Period Duration 30 minutes, products of this length not available.



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